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NATURE AND CONTROL OF HEMORRHAGE IN NASO-PHARYNGEAL OPERATIONS.*

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The operative technique in nasopharyngeal work has recently seen such gradual and progressive improvement that the procedures involved have at the present time reached a high degree of efficiency. Indeed, numerous methods offer themselves to the specialist in this field of surgery, and it is the ability to choose and execute the one procedure specially adapted to the exigencies of the case on hand that marks the man with extensive and varied experience in naso-pharyngeal work, that is, the specialist, from the occasional operator on the nose and throat.

Such rapid progress in operative technique has had, however, one undesirable feature. It has somewhat blunted the recognition of the fact that nasopharyngeal operations are in many ways similar to the major operations of surgery, involving comparable risks from shock, anesthesia, infection, etc.

Moreover, the one striking thing about a major operation is its comparative bloodlessness, and the great care taken to effect such bloodlessness to the highest degree possible. In nasopharyngeal work, on the other hand, much remains to be done in this phase of the operation to obtain any results that are comparable to those attained in general surgery. Yet, careful comparison of a laparo-

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tomy with a tonsillectomy, let us say, shows that the dangers of uncontrolled hemorrhage or oozing is rather more marked in the latter than in the former. Of course, bleeding from a large vessel is equally dangerous whether the blood enters the peritoneal cavity or gushes from the mouth, and its treatment, that is, ligation of the large vessels is equally imperative and is about the same in procedure in either case.

On the other hand, smaller hemorrhages in our work are of greater significance because the blood is apt to enter the bronchi and the lungs with much more serious consequences than if the free peritoneum were involved. Moreover, such blood is more apt to be and indeed almost always is mixed with infected tissues or secretions, for, of course, no nasopharyngeal field can be made as sterile as a clean peritoneal or other field of surgical interference. To the dangers of mechanical damage due to interference with respiration and with the circulation in the lungs, is added the probability of infection with all its dire consequences from a slight bronchitis to a bronchopneumonia or a lung abscess. In this connection the great difficulty of immobilizing the site of bleeding in nasopharyngeal work, the site of operation being usually involved in the movements of respiration, swallowing, vomiting, etc., must be remembered and compared with the more or less greater ease with which other fields may be immobilized from the complete rest of an extremity to the fairly complete paralysis of the intestine attainable by the use of drugs.

Still there is no denying the fact that nasopharyngeal operations are done by the hundreds in which these considerations are hardly entered into, and it is probable that it is merely the lack of such records as are usually available in the major surgical field that hide the fact of the extensive amount of damage that results. There seems to be no reason why progress in this important detail of operation should not go on at a speedier rate than heretofore has been the case. Careful study of the literature and extensive experience in special nasopharyngeal work have convinced the writer that there has been rather a lack of application of the various methods involved rather than absence of remedies dealing with the evil.

The procedures involved in dealing with nasopharyngeal hemorrhage are preventive, surgical and medical. The preventive methods in the first place depend upon such study of the general condition of the patient as may reveal any constitutional conditions favoring a hemorrhage from the much feared hemophilia to diseased kid-

neys with consequent high blood pressure. Such study we may safely leave to the internist or to the family practitioner who is usually the intermediary between the patient and the specialist surgeon. I would like to warn the latter, however, from taking any unnecessary risks in the matter with patients who reach him directly or in whom the general examination has not been thoroughly performed. The time spent in having such examination done while apparently thrown away in case after case, may save him from the great misfortune of witnessing a serious or fatal outcome after operation upon a patient who should either never have come to operation or have been properly prepared for the procedure.

Further prevention is inherent in such mastery of technique as shall result in the choice of the method best adapted to the individual case. In this connection, the recent anatomical studies of Balatnikow[1] are interesting. He says: "The topographical relations between the large vessels and the lateral pharyngeal wall are dependent, in a great measure, upon the development of the bony parts of the skull in that region, and that on account of the poor development of the visceral portion of the skull, the blood vessels lie closer to the tonsils in adults than in children."

The position of the head had an influence on the topography of the vessels and their relation to the tonsils; the blood vessels are closer to the lateral pharyngeal wall on that side from which the head is turned away and further away on the opposite side.

The distance between the tonsils and the internal carotid is about one-half to one centimeter, and between the tonsil and the external carotid artery is about two centimeters. This distance, however, is variable. Opening the mouth and depressing the tongue was found to have no influence on the position of the blood vessels in the dead body, but in the living it is possible, by such manoeuvers, to bring about a change in the position of the vessels, particularly if there is an infiltration of the peritonsillar tissue. The pharyngeal wall is in intimate relation with the internal and external carotid arteries, the facial, the lingual, and the ascending palatine artery, and sometimes with the ascending pharyngeal artery and also with the submucous peripharyngeal plexus of veins. The "bouquet of Riolan," a cluster of ligaments and muscles attached to the styloid process, cannot always be relied upon as a protection to the blood vessels, as their relation is dependent upon the height of the cut.

Speaking about hemorrhages, Balatnikow says: "Hemorrhage following operation on a peripharyngeal abscess may come either

because the arteries are wounded or because the veins are distended or varicose. As the arterial branches reach the tonsil capsule only, breaking up into capillaries on entering the tissues of the tonsil, tonsillotomy should not be followed by more than capillary or venous bleeding. If the tonsil, however, is completely removed within its capsule, severe arterial bleeding is possible. Because of the possibility of an abnormal position of the blood vessels, they should be carefully located by palpation before operating."

The following rules for operation are laid down by Balatnikow:

"In tonsillotomy, only that portion of the tonsil which projects into the throat should be removed. The tonsils should never be pulled out of their niche and the instrument should never be pressed hard against the lateral wall of the pharynx.

"In pharyngeal abscess, all precautions should be taken to check possible bleeding—instruments to sew the pillars or even to ligate the common carotid artery being held ready.

"The patient's head should be firmly fixed, the medium position being suggested as the one most desirable both from the standpoint of danger and facility in operating.

"The knife should only be used in making the incision through the mucous membrane, all deep exploration being done with a dull instrument. The wound should not be carried more than a centimeter and a half deep if a sharp pointed instrument is used.

"The surface of the cut should be parallel with the long axis of the mouth and the knife must never be directed backward and outward. The site of the incision be determined according to Thompson, i. e., the wound should be made in the apex of the external inferior quadrant, which is determined by drawing a line horizontally through the base of the uvula to meet a line drawn vertically through the anterior edge of the anterior faucial pillar."

The following hemostatic measures should be employed in the order given in cases of post-operative hemorrhage following operation upon the tonsils and lateral wall of the pharynx.

(1) Application of Mikulicz's compression forceps;
(2) Sewing together of the palatal arches;
(3) Compression of the common carotid artery;
(4) Ligation of the common carotid artery or its branches.

J. Leslie Davis'[2] investigations concerning the blood supply of the tonsils are also of interest. He says: "There are certain fixed sources of all hemorrhages from tonsillectomy operations and the majority of the text books are in error as to the blood supply of

the tonsils." The entire supply comes from one artery which is formed "by an anastomosis of the ascending palatine branch of the facial and the descending branch of the internal maxillary. The artery thus formed, enters the fossa at its superior extremity, passes downward through the capsule for a distance of about one-half an inch before penetrating the capsule to reach the tonsil parenchyma." The tonsillar branch of the facial artery, the branch from the dorsalis lingua, and the branch from the ascending pharyngeal, supply only the surrounding structures in 95 per cent of cases at least. Davis, therefore, after enucleation of the tonsil places a suture ligature (using No. 1 catgut) around this artery in the upper part of the tonsillar fossa and ties it off. This is his routine practice in all adult cases, but with children, only when the bleeding is profuse and continuous.

While some of the conclusions drawn by the above investigators may be open to criticism, it is the purpose of this paper to call your attention to the amount and character of the work that has been done rather than to its merits or demerits.

Based upon the commonly accepted causes of hemorrhage, viz., high blood pressure, persistent vaso-dilatation and delayed blood clotting, therapeutic measures employed in the control of hemorrhage are of three kinds:

(1) Those equalizing the circulation and lessening the intravascular pressure at the bleeding point;

(2) Those contracting the vessel itself;

(3) Those decreasing the coagulation time of the blood.

Recent investigations of the phenomena of clotting of the blood have shown that normal blood in itself contains substances which, under certain conditions, unite to bring about coagulation.

According to Morawitz, a substance which he calls thrombokinase is present in all body tissues and especially in blood platelets. Prothrombin, antithrombin, calcium salts and fibrinogen are constantly present in normal blood. When the tissues or formed elements of the blood are injured, thrombokinase combines with the calcium salts and prothrombin to produce a new substance called thrombin which, with the fibrinogen forms fibrin or clot.

According to the investigations of Bordet and LeLange, thrombin is formed by the reaction between cytozyme and serozyme in the presence of a calcium salt. The cytozyme is found in platelets, leucocytes, and tissue juices (probably the thrombokinase of Morawitz and Howell) and the serozyme in the blood serum. These investi-

gators attribute the formation of fibrin to the action of thrombin on fibrinogen.

Howell assumes that while the elements of coagulation are all present in the blood, there is normally sufficient antithrombin to prevent clot formation. The balance between the two is very delicate; cellular injury releases a substance, which he calls thromboplastin, that neutralizes or binds the antithrombin and permits the other elements of the blood to combine in the formation of the clot. Howell's views seem to explain the known phenomena of coagulation more completely than the earlier theories.

While we cannot enter into a detailed review of these studies, the theories of the formation of antithrombin must be mentioned as being of great interest and importance in the intelligent understanding of the factors underlying operative hemorrhage.

Most investigators agree that antithrombin is formed in the liver. Experiments on the origin of antithrombin have been carried on with few exceptions with Witte peptone which, when injected intravenously into dogs produces an anticlotting substance in the blood. That the liver is at least a factor in the production of antithrombin has been shown by the discovery that in dogs in which the liver has been eliminated from the general circulation injections of peptone do not have an anti-clotting effect on the blood.

Denny and Minot[3] conducted a series of experiments to determine the antithrombin contents of the blood in different parts of the body and attempted to produce antithrombin. Their investigations included a study of the effect of liver destroying substances upon the antithrombin content of the blood and have led to the following conclusions:

Antithrombin is formed in the liver. Venous blood taken from the liver, spleen, kidneys and intestines shows no appreciable difference from the blood of the jugular vein in antithrombin content.

When stasis is produced in any of these organs the liver blood alone shows a definite increase in antithrombin.

Perfusion of the liver with defibrinated blood causes an increase in antithrombin in the perfusate. Perfusion of the head, spleen and hind leg shows no marked increase and generally a decrease in antithrombin content.

Attempts to stimulate the liver to production of antithrombin by means of bile, bile salts, secretin and electrical stimulation were negative. Injection of small amounts of thrombin into the portal circulation caused a slight rise in antithrombin.

Dogs with phosphorous poisoning and consequent liver destruction show a marked increase in antithrombin content of the blood as well as a diminution in fibrinogen.

An interesting paper by Katherine and Cecil Drinker[4] on the effect of rapid progressive hemorrhage on the coagulation time of blood was published in February, 1914. According to these investigators, such hemorrhage causes a decrease in coagulation time, a gradual steady fall being noticeable as hemorrhage proceeds. This change was accomplished by a decrease in antithrombin, its amount remaining constant when the coagulation time was unchanged. Prothrombin was shown to increase slightly at first and then to decrease slightly. Fibrinogen was found to decrease as hemorrhage progressed. Platelet counts did not vary with progressive hemorrhage.

Gray and Lunt[5] conclude that moderately severe hemorrhage (13 per cent of the circulating blood) decreases clotting time. The important coagulating factors may be localized in the abdomen because (1) exclusion of the abdominal circulation increases clotting time and (2) hemorrhage after exclusion no longer results in decrease of clotting time.

The adrenal glands probably favor by their secretion rapid clotting after hemorrhage, but after adrenalectomy hemorrhage still decreases the clotting time.

Exclusion of the intestines usually increases clotting time but after this exclusion, hemorrhage can still decrease the clotting time.

The important role which the liver has been proved to play in coagulation indicates that it provides, perhaps in coöperation with the intestines and the adrenal glands, the necessary elements to hasten clotting after extensive bleeding.

Vosburgh and Richards[10] in 1903 noticed that an increase in sugar content caused the blood to coagulate more rapidly and as they had obtained this result by painting adrenalin on the pancreas, concluded that this was due to the action of adrenalin on the pancreas. Wiggers, a few years later discredited this. Von den Velden[11] in 1911 asserted that adrenalin decreased the coagulation time in man about one-half but attributed it to vasoconstriction which caused a discharge of tissue juices into the blood.

Cannon and Gray[6] discredit the theories of both Vosburgh and Richards and of Von den Velden and conclude that:

Adrenalin injected in small doses intravenously (0.001 mg. per kilo) and in large doses subcutaneously, will shorten coagulation time to

one-half or one-third the former duration. The prompt shortening of the process after small doses is changed after larger doses (about 0.03 mg. per kilo) to a lengthening and later a shortening, or to a lengthening alone.

The effect of adrenalin on the clotting time is not associated with any corresponding effect on arterial pressure.

If the blood is confined anterior to the diaphragm, or if the intestines and liver are removed, adrenalin in small doses does not cause rapid clotting.

The addition of small amounts of adrenalin to drawn blood does not hasten clotting. Increase of dextrose in the blood to 0.3 or 0.4 per cent does not cause the rapid clotting seen after adrenalin injection.

The explanation is suggested that adrenalin accelerates the clotting process by stimulating the liver and perhaps the intestines to greater activity in discharging some factor or factors in coagulation.

In the same year Cannon and Mendenhall,[7] using as a basis for their experiments the discovery that injected adrenalin shortened the coagulation time of blood, attempted to increase the secretion of the adrenals by stimulating the splanchnic nerves to produce similar effects with the following results:

Stimulation of the splanchnic nerves results immediately or after a brief delay in shortening the coagulation time of blood.

Such stimulation usually produced less marked effect as it is repeated. If the adrenal gland is removed on one side, splanchnic stimulation on that side does not shorten clotting time; whereas splanchnic stimulation on the other side is still effective. The faster clotting is therefore due to increased adrenal discharge.

Since stimulation of the nerves supplying the liver and intestines does not hasten clotting and since increase of adrenalin has no effect in the absence of the liver and intestines, the shortened clotting after splanchnic stimulation is accounted for by the action of adrenal discharge on the liver and perhaps the intestines.

In a study on the effects of pain and emotional excitement upon coagulation of the blood, these investigators conclude that:

Stimulation of afferent nerves (sciatic, crural) or major operations under light anesthesia markedly shorten the coagulation time of blood. Emotional excitement is the occasion for very rapid clotting which becomes slow when the splanchnic nerves are cut. Pain and strong emotions have been proved to evoke secretion of the adrenal glands; and adrenalin hastens clotting. Rapid coagulation

may be reasonably considered, therefore, as another instance of adaptive reaction serviceable to the organism in the injury which may accompany pain or which may follow the struggle that fear or rage may occasion.

Before concluding this part of my paper, I wish to call your attention to some recent investigations on the effects of chloroform and ether on the coagulation of the blood. In July, 1915, Mendenhall published a report of his investigations on this subject from which he draws the following conclusions:

Coagulation time is little altered by chloral hydrate.

Coagulation time is affected by chloroform as by chloral hydrate. The effects of chloral hydrate and chloroform are probably the result of disturbance and consequent interaction between two or more organs which are important in the coagulation process; probably liver, intestines and adrenal glands.

The evidence is not sufficient to prove that a retarding agent is produced.

Coagulation processes are hastened by ether anesthesia. The effect of ether is exerted wholly through its action upon the adrenals.

In December, 1915, Minot[8] summarized his investigations as follows:

Antithrombin is rendered inactive by choloroform and ether, thus allowing free thrombin, if present in an oxalated plasma, to clot fibrinogen.

Prothrombin is not converted to thrombin by chloroform; chloroform can precipitate both fibrinogen and prothrombin from an oxalated plasma. Chloroform does not weaken the action of a solution of pure thrombin. Ether does slightly.

Antithrombin could not be recovered from chloroform or ether extracts of serum or plasma, unheated or heated to 60 degrees C., and is not exactly identical to antitrypsin or to Doyan's antithrombin.

In one chloroform poisoned rabbit, the antithrombin of the blood was decreased below normal.

With the conclusions of these and other investigators in the field of physiology in mind, other scientists in the fields of bio-chemistry and pharmacology, have been at work with the idea to strengthen and hasten by therapeutic means the natural processes of coagulation. I shall mention a few of the better known products which have been the result of their efforts.

Immediately after Oliver and Schaefer, and Czybulski and Szymonivicz discovered in 1895 that there was a very marked rise in blood pressure after intravenous injections of extracts of the suprarenal glands, Moore demonstrated "that the active substance was only present in the medullary portion of the gland and that it was identical with a chromogenic substance, described by Vulpian as early as 1856, possessing striking color reactions—green coloration with iron chloride on the addition of alkalies or with iodin or chlorin water a pink-carmine color. The reaction suggested brenzcatechin and Von Furth succeeded in preparing from this chromogen a substance which in its behavior agreed with brenzcatechin. Takamine first prepared the crystallized active substance in 1901 and named it adrenaline." (Meyer and Gottlieb.) To discuss further so widely and well known a substance as adrenalin would be superfluous.

In 1867, Pelletier separated from ipecacuanha its emetic principle which he named emetine. In 1894, Paul and Cownley isolated its two crystalline alkaloids emetine and cephaeline. The uses to which this drug has been put are also well known. My personal experience with emetine in nasopharyngeal hemorrhage has been extremely gratifying and while I am unable to say in what manner it acts, I have come to look upon the injection of one-half grain of emetine before operation as a routine procedure in my operative work. I made a close study of my results when I first began to use emetine using the Duke's coagulometer in making my tests. My results after several months' experience warrant me in claiming that by a hypodermatic injection of one-half grain of emetine fifteen minutes before making my tests, I am able to reduce the bleeding time by one-third at least.

Pituitrin is described as an extract made from the infundibular portion of the hypophysis. In 1913, Citelli published a report of his gratifying experiences with pituitrin in the control of nasopharyngeal hemorrhage and since then there have been other reports of a similar character. I tried out pituitrin in the same manner as I did emetine and obtained practically the same result, i. e., the bleeding time was reduced about one-third. I did not, however, get as uniform results as I did with emetine.

Coagulen Ciba was discovered by Professor Kocher of Berne University and his assistant, Dr. Anton Fonio, and is described by them as an extract of blood platelets containing cytozym which when added to animal blood combines with serozym existing in the blood and forms thrombin or fibrin ferment. Being wholly within the

bounds of a physiological process, coagulation with this preparation is claimed to be harmless and non-irritating.

Fonio has published his personal experience in the treatment of 700 cases and says that in no case was any septic effect observed. Kausch, after treating 300 cases with coagulen ciba confirmed Dr. Fonio's experience, as also did Dr. Obermueller after an extensive use of it in rhinological practice. My own experience with this product has not been as extensive as with the two former preparations but in every case in which I have used it, it has shortened the bleeding time, in a number of instances having had an almost instantaneous effect.

Thromboplastin (tissue juice) is prepared from the liver and brain of cattle. Dr. Hess[9] published his preliminary report of his experiences with this tissue juice in April, 1915, and since that time, other reports have been made of its successful use in the control of hemorrhage.

Dr. John T. Cronin of the New York Department of Health, reports on its use as follows:

"The use of thromboplastin has been extended to all Department of Health Nose and Throat Clinics. In a summary of 2,036 tonsil and adenoid operations the results were all excellent, in a large majority of the cases there was no bleeding at all and in the remaining cases only slight bleeding. There were no bad after effects. In no case has the operator or nurse been obliged to return to the clinic to care for a bleeder since the use of thromboplastin has been made a routine procedure."

In the comparatively few cases in which I have used thromboplastin, I have had uniformly good results.

Coagulose, a product obtained by precipitating normal blood and said to contain the fibrin ferment necessary for clotting blood is reported to have given good results in nasopharyngeal hemorrhage. Frey in 1898, treated hemorrhage with normal horse serum. Weil reports a case in which he shortened the coagulation time from four and one-half hours to forty minutes by means of this treatment.

Still other products have been offered from time to time for the control of hemorrhage but have not become so well known and their effect has not been, consequently, so closely studied.

I have attempted to show that recent investigations by anatomists, physiologists and pharmacologists have a direct bearing upon the daily problems of our work and it is no less than imperative that the results obtained by these workers should find prompt application

and control in actual operative technique. Such course of action must require a somewhat different attitude to nasopharyngeal surgery from that usually encountered. As I have shown, even the single element of hemorrhage presents as perplexing problems as any that may arise in the usual procedures of major surgery, and it demands the same attitude from us, workers in this special field, as the pioneer surgeons and the present leaders of surgical science have shown in their work.

Such attitude and with it success in the development of this important branch of medical endeavor must rest upon the following factors:

Careful study of the local anatomical situation and the discovery of facts leading to the improvement of general technique and especially improvements in the prevention and treatment of hemorrhage;

General examination of the patient with the purpose of discovering any constitutional or morbid factors leading to the decrease in the clotting index of the blood;

The choice of proper anesthetic and its proper administration.

The study of new substances developed in the laboratory and applicable in the diminution of the tendency to bleeding and in checking such hemorrhage once it has set in,

And, finally, such coöperation between the different workers in these varied fields as shall most certainly and quickly lead to our goal, that is, the proper and efficient correction of morbid conditions of the throat and nose, attained with least discomfort and danger to the patient.

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2. J. LESLIE DAVIS: THE LARYNGOSCOPE, March, 1914, Vol. 24, p. 161.
3. DENNY AND MINOT: *Amer. Jour. Physiology*, Aug., 1915, p. 233.
4. KATHERINE AND CECIL DRINKER: *Amer. Jour. Physiology*, Feb., 1915. p. 305.
5. GRAY AND LUNT: *Amer. Jour. Physiology*, June, 1914, p. 332.
6. CANNON AND GRAY: *Amer. Jour. Physiology*, May, 1914, p. 232.
7. CANNON AND MENDENHALL: *Amer. Jour. Physiology*, July, 1915, p. 33.
8. MINOT: *Amer. Jour. Physiology*, Dec., 1915, p. 131.
9. HESS: *Jour. A. M. A.*, April 24, 1915, p. 1395.
10. VOSBURGH AND RICHARDS: *Amer. Jour. Physiology*, 1903, IX., p. 39.
11. VON DEN VELDEN: *Muenchener med. Woch.*, 1911. LVIII., p. 187.

LEFT-HANDEDNESS AS AN ETIOLOGICAL FACTOR IN SPEECH DEFECTS.

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Left-handedness has for centuries been one of the peculiar characteristics of humankind that have led men to make conjectures as to its "why and wherefore." A similar cause for wonder pushed its way into our thinking when it was discovered that ever and anon Nature placed a man's heart on the right side of his body. Men have sought to find a relation between these variations; they have attempted to correlate epilepsy and left-handedness; left-handedness and mental ability, and the idea, that the skilled movements of the hand are not entirely unrelated to the working of that complex mechanism of articulate speech, is not entirely new. But it may seem a wholly new, a rather fanciful hypothesis that the training of a left-handed person's right hand should evolve in him a defect of speech. Yet a consideration, first, of the anatomical background of the speech mechanism, and then of the neural representation of the fine adjustments of the right fore-arm will, we think, show a relatedness of kind and intimacy of association which makes easy of acceptance the fact we have observed, that a forced disturbance in one of these functions is apt to make itself evident in the other.

The founder of the doctrine of phrenology is Gall. His attempt to materialize and localize psychic processes was declared by the Paris Academy of Sciences to be erroneous. Gall's deductions that the convolutions of the hemispheres of the great brain ought to be recognized as the parts where the instincts, feelings, thoughts, talents, the affective qualities and the moral and intellectual forces are exercised, were quite sound; but, unfortunately, his imagination led him into speculation of hypotheses unsupported by facts. After great controversies his theories were soon forgotten.

In 1825, for the first time in the history of medicine, Bouillaud attempted to determine a localization within the brain for the center of speech. His *"principle legislateur de la parole"* (the localization of speech), was however not acknowledged by his contemporaries although he based his theories on cases in which speech had been affected during life and in which after death the frontal lobes were found to be injured. In 1836, Marc Dax, a French physician, reported before a meeting of physicians at Montpelier, the results of his investigations in eighteen hundred cases of hemiplegia of the right half of the body with accompanying disturbances of speech.

This observation led to the establishment of a most important fact in connection with speech, namely, that right-handed people use the left hemisphere of the brain in speech.

In 1861, Broca revolutionized our conceptions of the function of speech by localizing it within the third and second convolution of the frontal lobe. Ever since that time this region has been called "Broca's speech center." Broca, in 1862, explained the localization of the speech center in the left hemisphere by the preponderance of right-handedness in the human race. His theory was, however, apparently contradicted by the discovery that speech disturbances occurred also in cases of left-sided hemiplegia. Upon closer examination the interesting fact was revealed that these cases of left-sided hemiplegia with speech disturbances were left-handed people. Post-mortem examination of such cases as published, for instance, by Pyr Smith, Hughlings Jackson, and John Ogle, showed that the lesion was within the third and second convolution of the right frontal lobe. Broca brought these newly discovered facts into accord with his theory by explaining that in the left-handed person the speech center is located in the right hemisphere. The preponderance of right-handedness in the human race was evidently in accordance with the presumption of the localization of the speech center within the left hemisphere. But direct evidence was not at hand until 1870, when Fritsch and Hitzig began their experiments of stimulating the cerebral cortex with an electrical current and showed conclusively that stimulation of one cerebrum produced coördinated movements in the opposite side of the body.

In 1874, Wernicke published his work which distinguished a sensory speech center in the temporal lobe of the left hemisphere at the same time accepting Broca's center as the correct location of the motor speech functions. In the recent work of P. Marie[2] the position is taken that in all speech disorders the actual injuries always extend beyond the limits of Broca's speech center, and that the assignment of special speech functions to this area is entirely unjustified. We have the further confusing evidence of a case reported by Lewandowsky,[3] of a thoroughly right-handed person who, at autopsy, was found to have a tumor in the right centrum ovale, and still presented an aphasia and a right-sided apraxia. Professor Ernest Jones, who refers to the case, remarks: "From this careful description it would seem that in the future the possibility must be accepted of the speech and purposeful movements being localized in the right hemisphere even although the person is right-handed."

While the problem of the localization of cerebral function is still

comparatively young and as yet unsettled, much progress has been made. The situation is well stated by a recent author:[4] "There seems, therefore, on the whole, to be good ground for retaining Broca's speech center, while relieving it of part of its supposed duties. It is probable that the rearmost part of the third frontal gyre (Wernicke's area), in the left hemisphere, is intimately connected with the adjoining part of the precentral gyre, from which issues the motor pathway to the muscles of speech. Also, there is good evidence that the Broca region is the most vulnerable part of the cortex, as regards the motor coördination of speech. A writing center in the second frontal gyre, in close proximity to the motor area for the hand, has been asserted as the teaching of a few strikingly positive cases; but the negative and mixed cases have sufficient weight to prevent a general acceptance of this localization. Indeed, the entire cerebrum would seem to be, of necessity, involved in man's linguistic attainments and uses."

The localization of the speech centers, then, seems to be well established; their situation in the cerebral hemisphere corresponding to the most developed side of the body seems to be the rare exception; and the proximity of the speech center to the area of motor control of the arm, together with the cases where disorders have appeared in these functions simultaneously, lends itself, on the anatomical side, to the hypothesis that there is an intimate connection between the localized areas for speech and the highly refined motor coördinations of the right arm.

As regards the fact that the left hemisphere is the seat of direction for the majority of these skilled movements, there is little information of an *etiological* character. We may distinguish between the general lines of evidence as they attempt to explain the phenomenon from an evolutionary or functional point of view or as they seek for some more direct explanation in the anatomical structure of the human being. The phenomenon in itself is an interesting one. As E. T. Brewster[5] has expressed it: "Dexterity then, on either side of the body, is a universal and peculiar human quality, as characteristic of our species as laughter, speech, reason, the ability to use tools or to walk on the hind-legs. In fact, considering that parrots and jackdaws talk, that bears and apes walk erect, while if horses do not laugh, dogs do sometimes smile, and that it is about equally difficult to prove that some animals do not reason as that some men do, one might even go so far as to say that this universal and peculiar uneven-handedness is the only certain test of humanity." And while it is quite remarkable that one cerebral hemisphere should

have been called upon to preside over the movements of speech and over those of the skillful right hand we may be assured that this arrangement did not happen by chance and we may inquire what advantage tempted evolution to produce such an arrangement.

On the one hand we have such explanations as the following: "Seeing that there is no apparent anatomical reason why man, even primitive man, has chosen the right hand as the instrument of the mind, we may ask if it is an acquired useful habit to which anatomical conditions may have contributed as a coefficient. Primitive man depended largely upon gesture language, and the placing of the hand over the heart is universally understood to signify love and fidelity. Primitive man also protected himself from the weapons of his enemies by holding the shield in the left hand, thus covering the heart and leaving the right hand free to wield the spear. In the long procession of ages evolution has determined the right-hand specialization as being more advantageous to the progress of mankind than ambidexterity. Right-handedness is an inherited characteristic in the same sense as the power of speech."[6]

Similarly Kussmaul assumes, that although there are innervation centers for all manual acts in both hemispheres, those in the left hemisphere are more developed because right-handed persons have always used these centers.

So Gaupp considers right-handedness a specific characteristic of the human race; he believes that the asymmetry of the human body shows itself not only in right-handedness, but also in other parts of the body. He points out that this asymmetry is not a disadvantage; but is, on the contrary, in most intimate connection with the advantages we enjoy. He says, "perhaps symmetry was the sacrifice Nature had to make to bestow upon the human race, other, richer assets."

M. Meyer makes a similar observation. He explains the apparent physiological discrepancy of right-handedness by the evolution of the human race. Animals are ambidextrous in contradistinction to mankind, and human culture has brought about this one-handedness.

As opposed to these theories, there have been several explanations set forth based on peculiarity of anatomical structure. According to Broca[7] the left hemisphere of the brain is usually developed earlier than the right and thus the right extremities are involuntarily preferred for muscular activities.

William Ogle lays stress upon the following organic features in explaining the prevalence of right-handedness: From an examination of a number of brains he points out greater weight and great-

er specific gravity for the left hemisphere; that the left hemisphere is richer in convolutions and is sooner developed in the foetus than the right one, and finally it is more richly supplied with blood, the "carotis communis" of the left side being usually larger than the right one. But Dr. Cunningham[8] shows good experimental evidence to disprove greater blood supply to the left cerebral hemisphere and states that Braune in an examination of ninety-two brains found that in fifty-two the right hemisphere was heavier; and having cited evidence unfavorable to the theory of greater richness and complexity of convolutions in the left cerebral hemisphere, and against an earlier development of it he turns to a restatement of the theory set forth by Buchanan[9] in 1862. The explanation is based upon the mechanical advantage of the right side. Owing to the superiority of the right lung as a more stable support for the right upper limb, together with the fact that the content of the abdominal cavity is heavier by about fifteen ounces, on the right side, thus displacing the center of gravity to the right of the mesial plane, there is, he says, a considerable mechanical advantage for the right limbs more than for the left.

The latest and perhaps the most interesting explanation of left-handedness based on a structural peculiarity is that set forth by Stevens and Ducasse.[10] The conclusions arrived at are substantiated by considerable data of an experimental nature obtained from a study of peripheral vision. They are as follows: "By reason of the fact of a marked difference in the space sense of the two halves of the retina, those objects in the right half of the field of vision, by appearing larger, attract the visual attention which in turn leads to grasping movements of the right hand. The hand thus favored by earliest experience acquires a special skill which causes it to be used in all manual acts requiring the greatest precision. This over-estimation occurs in the left half of the retina in both eyes and is due to some anatomical peculiarity which this half of the retina acquires by virtue of its connection with the left hemisphere of the brain." We see no *a priori* reason why this peculiarity of the retina should not be treated as an explanation of the greater development of the left hemisphere just as the greater use of the right hand has been used to explain it. We would like to suggest, however, that the theory would become more conclusive if it were found that this peculiarity were reversed in left-handed persons.

So much for the etiology of left-handedness. It has been thought to be a habit, a result of training, and when one reflects on the fact that the child is usually ambidextral until the thirteenth month,[11] the

theory carries some plausibility. Prof. Meyer[12] thinks, and apparently not without good reason, that the infant is usually left-handed. However, this last question may be settled the evidence is too great against the proposition that the child becomes right-handed as a result of education. For on the other hand it has been shown that left-handedness and consequently right-handedness is an inherited character and on the other that right-handedness appears among savages where civilization and custom have not been dictators, where Nature has been the only instructor. This preponderance of right-handedness is not new, it seems to have been the condition quite as far back as the history of man takes us. On this last point after reviewing the work of numerous eminent anthropologists we have searched this characteristic out of the dim past, from the engravings of prehistoric man, from the fashion of his weapons, and from the remnants of his skeleton, Dr. Cunningham remarks: "It is easy to prove that this characteristic is one of vast antiquity. Of this there is the clearest evidence not only in historical records and pictorial representations but also in ancient mythology and in the structure of all languages. So far back then as history takes us right-handedness would appear to have been a common birthright of mankind."

These two general lines of evidence we must insist upon as established, namely, that the unisidedness of man is more than a habit, and that there is some basis in the anatomical structure of the brain to account for, at least make possible, an intimate connection between the skilled movements of speech and those of the dextral hand. Whether we accept any of the theories of righthandedness that have been set forth or whether we leave this secret of man's unisided way among the mysteries yet before science to solve, we must recognize in the human preference for the right hand the same sort of structural basis as we have accepted for his capacity of speech. It may well be that in one case as in the other it takes education to bring this latent capacity to fruition but the evidence is quite as good for right-handedness as for speech that every normal child is born with the quality fixed in the complexity of his brain and nervous mechanism. Just how close the association is between these two complicated functions, it is evident that we do not know. We do know, however, that the seat of control of both is located in the same hemisphere; we know too that the area which controls the movements of the hand in writing is in close proximity to that which regulates the movements of speech. On the functional side we are aware of the fact that there are those among us

who seem to express themselves more adequately with their hands than with their speech organs, and Miss A. Wyczoikowska[13] cites some experimental evidence to show a direct connection between the movements of the thumb and forefinger and those of the tongue. We shall proceed, then, on the assumption that when we attempt to show that forcing the left hand to give up its natural functions may produce a defect in the mechanism of speech, we are not dealing with some mystical relation outside the casual sequence.

That many left-handed children are sufferers from speech defects is well known, and it has usually been supposed that the defect was a necessary consequence or accompaniment of the variation. Statistics about speech defects of the left-handed were gathered by Bolk and Lueddekens;[14] the latter found an anomaly of speech in 24 per cent of the left-handed children of normal mental qualities; in those of mediocre, 35 per cent, and in those of lower mental qualities, 44 per cent. In fact, in almost one-half of the left-handed children he found anomalies of speech.

The fact that among our manifold cases of speech defect, left-handedness was met with quite frequently, induced us to undertake the problem of finding out whether or not left-handedness may be considered an etiological factor in speech defects. During the last few months we have carefully looked into the histories of the stutterers and stammerers of the neurological department of the Vanderbilt Clinic, in order to find out whether they were, or had been, left-handed.

To such patients of the clinic as could not be interviewed personally, double postcards were sent with the request that the following three questions be answered: (1) Are you left-handed? (2) If not, were you left-handed before you became right-handed? (3) Are or were any members of your family left-handed? If so, do or did they have any speech defect?

There were many interesting replies to our three questions, but space forbids mentioning more than two. One says, in answer to the first question: "While not wholly left-handed I have some of its peculiarities. In baseball, while I bat the ball from right to left, yet I hold the bat cross-handed, that is, to bat the ball from left to right. When toeing the mark for running I advance my left foot first. I always put my left shoe on first. My left eye is stronger than my right." Another says, in answer to the same question: "Yes, that is for some things, ambidextrous as a result of forced training." In answer to the second question the same patient replies: "No, but always left-handed in dealing cards." In reply

to the third question this patient answers: "My maternal great-grandmother was left-handed."

Our investigation of 500 cases of speech defect shows that 25 per cent are or were either left-handed themselves, or some member of their family shows this interesting feature. Seventeen and one-half per cent remained left-handed or returned to the left-handedness notwithstanding the endeavor of both parents and teachers to make them right-handed. Eight per cent were left-handed before they became right-handed and of these 1.5 per cent are ambidextral. Left-handed heredity was met with in 24 per cent. Some more recent work has convinced us that these figures are conservative. The special speech defect in 92 per cent of the cases quoted is stuttering, while the other 8 per cent are lispers.

The prevalence of left-handedness among persons otherwise normal Dr. Ernst[15] found to be 3.7 per cent among boys and 4.8 per cent among girls. Of 2,000 subjects tested by Dr. Ogle,[16] 85 or 4.5 per cent were found to be left-handed; of the 85, twelve had a left-handed parent; and of 57 there were 27 who knew of a left-handed relative. He also found left-handedness to be twice as common among men as among women. Hyrtle[17] estimates the amount of left-handedness at 2 per cent; Brinton,[18] 2 to 4 per cent; Hasse and Dehner examined 5,141 individuals and found only 1 per cent of left-handedness.

We are not unaware of the criticism which may be suggested to discredit any inference drawn from the relatively high per cent of left-handedness found among persons suffering from speech defects. That is, it may be suggested, that left-handedness may be correlated in general with neurotic tendencies which in turn may be a favorable soil for the development of speech defects. Indeed, Vallin[19] has shown left-handedness to be more prevalent among epileptics than among normal subjects. Smedley[20] states that dull pupils are more nearly ambidextral than average, and average pupils more than bright pupils. H. E. Jordan[21] places the per cent of left-handedness for normal persons at 2 per cent; among lunatics, at 5 to 8 per cent; among criminals at 22 per cent; he also states that sinistry is more prevalent in the lower strata of society, that it is more often met with among savages than negroes, and more often among negroes than whites. Though all statistics do not agree with the tendency here shown to find a positive correlation between left-handedness and a rather lower mentality than normal, as for instance the work of Bolton, we rather agree with the first criticism suggested but are strongly inclined to think that the average men-

tality of the subjects with whom we are working is, except as might be accounted for directly by the handicap in speech, as high as that of the average school child.

But as a matter of fact the large percentage of left-handedness we have noted among persons having speech defects does not become strikingly significant until one considers the number of cases in which this sinistry has refused to succumb to the coercion of training. We have no statistics to offer as regards the prevalence of such cases, nor of ambidextrality or bidextrality among our subjects, as yet. We feel that a superficial investigation will not reveal the facts and in this case that the method of the questionaire is superficial for we have found that often our patients have been unconscious of the fact that they are wont to use both hands, that they are bidextral. As we have already stated, it is the exception that the left-handed person is not forced, either by custom or direct supervision, to use his right hand for movements that he would naturally make with his left hand. In many instances we have found direct evidence, both among those in whom the training of the right hand has been permanent and among those who have returned to the use of the left hand, that they were naturally left-handed. We are inclined to think that in many cases the training was begun so early as to obscure this natural tendency.

In order not to be obliged to depend upon such unreliable information, we are attempting to find out for ourselves whether the patient is left-handed or right-handed. Our experiments follow two general lines of inquiry. To ascertain the hand used in habitual movements we have followed the tests suggested by Ewald Steer:

To detect extreme left-handedness: Eating soup, removing the stopper from a bottle, turning a coffee grinder, writing.

To detect a moderate degree of left-handedness: (a) Involuntary or little observed movements of the hand, gesticulation in speaking; reaching out for objects; dealing cards.

(b) Voluntary, simple manual activities; throwing a stone or ball; shuffling cards; using a whip.

(c) Complicated, finer activities: threading a needle; peeling potatoes or apples; cutting bread.

To determine the natural efficiency of either hand we have used three tests, of common use in the psychological laboratory, but new to our subjects involving movements more or less unfamiliar. The tapping test is described in Whipple's manual, part I, page 130. A plate of brass four inches square is placed on the table before the subject. He is given a tapping stylus and is seated before the table

in a writing position so that his forearm rests upon the table. The only instructions given were that the subject should think of nothing else and tap the brass-plate as rapidly as possible from the signal "start" until the signal "stop." The stylus is connected by a flexible wire with an electrical counter, which is, in turn in circuit with dry batteries and the brass plate. The only other requisite for the test is a stop watch. The time given in each case was thirty seconds. Another test was made like the first in all respects except that for the brass plate was substituted a triangular board inclined 45° from the surface of the table. In each corner of the board is a hole .5 cm. in diameter, each hole being 8 cm. distant from the others. The subject was instructed to touch the bottom of the hole with the point of the stylus; the type of movement and direction of procedure was left to him. Three tests were made for each hand beginning with the right and thereafter alternating. In the following table the average for the three trials with each hand is given. The third test was the familiar measurement of the strength of grip by the dynamometer. We do not think that the absolute records here given are comparable with those where the Smedley instrument has been used for our dynamometer was of the simple oval type and non-adjustable. The index of dextrality, that is, the superiority of one hand over the other, is, however, directly comparable with other results. The subjects were picked at random from the clinic. There happened to be in the group one left-handed girl and three boys who considered themselves ambidextral. The small number of subjects, sixteen, tends to make the results inconclusive; we publish them as they tend to be expressive of the progress of the work so far as it has gone. Three tests were made with the dynamometer for each hand; only the best record is given. Of the sixteen subjects, fourteen were stutterers and two were lispers:

In the table I stands for index of dextrality, obtained dividing the record of the left hand by that of the right.

The results here hardly warrant any interpretation. Attention may, however, be called to the fact that nine of the sixteen subjects did better in the dynamometer test. The only subject who excelled with the left hand in the three hole tapping test was the avowed left-handed person. In the tapping test only two did better with the left hand, and both of these stated that they were right-handed in all respects. Why the tendency to left-handedness should appear in the measurement of the strength of grip and not noticeably in the tapping test is rather obscure. If the results of our further investigations should confirm the tendencies here indicated,

we might infer that the greater success in the tapping tests with the right hand was due to training, while the records of the dynamometer more nearly express the natural undeveloped capacity. As regards the index of dextrality with the dynamometer, Whipple places it between 91 and 96 per cent; Smedley, from 82 at the age of nine, to .89 at the age of eighteen; Wallin, for epileptics at 1.5 per cent.

Subject:	Age:	Sex:	Tapping:				Three Hole Test:			Dynamometer		Hand Prefer.
			R.	L.	I.	R.	L.	I.	R.	L.	I.	
W.S.	17	M.	141	60	.43	43	39	.9	39	35	.9	R.
H.S.	16	M.	151	142	.94	53	45	.84	30	37	1.23	B.
R.G.	12	M.	171	177	1.03	43	38	.88	22	23	1.04	R.
J.N.	12	M.	165	137	.83	48	31	.65	19	12	.63	R.
Y.S.	13	F.	171	138	.8	39	36	.92	14	16	1.14	R.
S.H.	20	M.	127	112	.88	44	43	.98	36	33	.92	B.
M.W.	18	F.	162	157	.97	26	28	1.08	11	13	1.2	L.
S.B.	21	F.	144	147	1.02	46	35	.76	14	15	1.1	R.
M.R.	16	F.	132	109	.83	43	36	.84	16	19	1.2	R.
A.G.	14	F.	160	143	.19	42	35	.83	20	18	.9	R.
F.E.	16	F.	137	132	.96	42	32	.76	17	18	1.06	R.
A.W.	20	F.	140	123	.88	37	28	.76	20	25	1.2	R.
C.H.	18	M.	151	110	.73	43	35	.81	35	31	.9	R.
R.C.	15	M.	134	123	.92	45	40	.89	21	20	.95	R.
L.D.	15	M.	144	134	.93	36	31	.86	18	21	1.17	R.
					Av. .76			Av. .86			Av. 1.03	

The evidence that training the right hand of the left-handed child produces a speech defect must be more or less inconclusive for there will always be an abundance of negative cases. But the fact is before us that many times the speech defect appears simultaneously with the correction of the left hand at a time when the child's speech has become well established and there is some evidence to show that the defect disappears with the return to the use of the left hand. Dr. Whipple[22] calls attention to three cases where the casual relation seems well enough established. He says: "My attention has been called to a case of left-handedness in a boy about eight years old and in the third grade. His teacher tried to compel him to use his right hand in various school exercises, with the result, apparently, that a speech defect nearly equivalent to stammering, appeared." He cites another case of a little girl whose development seemed normal until about a year and a half old, when an attempt to convert her left-handedness resulted in her ceasing to talk. When given liberty to use her left hand again freely she began to talk. The third case concerns a young man of twenty, afflicted with word-blindness and stuttering, who was cured by reversing the "hand."

When we began our study of these cases we were unaware that anyone else had noticed a relation between these two conditions. Among the left-handed patients who had come to us for training we found a number whose speech defect appeared at about the same time that they were forced to change the dextral hand. This led us to inquire further and though oftentimes it has been very difficult to ascertain at just what time the speech anomaly made its appearance or just when the education of the right hand began, we have been able to find some twenty cases which seem to us clearly indicative of the interaction of these two motor coördinations. Four of these cases are represented in the tests. The evidence is not so clear as in the cases cited by Whipple, for while the speech difficulty seems to have occurred as a result of the forced training of the right hand, we have not found that where a return to the use of the left has occurred that the difficulty disappeared. The evidence we have gathered was obtained from the persons or from their parents. We quote the following, a voluntary retrospection of S. H. as he was doing the tests, as typical of the information we obtained: "When I was six or seven years old I began to stutter when talking to my teacher. She made me use my right hand and hit my left one every time she saw me use it. But every time she turned her back I used my left again and so now I write with my right hand and every little movement I make with my right, but I pitch ball with my left." We have as yet no clear evidence that a return to the use of the left hand will alleviate the difficulty of speech, but our study in this direction has not gone far enough to produce results.

In view of the multiplicity of situations which result in anomalies of speech and because it is so difficult to make a clear case for the etiological factor of left-handedness even with those patients where the evidence seems most convincing, we wish the following conclusions to be considered tentative. We hope, however, that the present data will recommend itself sufficiently to speech educators to merit consideration in the therapy of their cases.

1. The human race is peculiarly unisided. Corresponding to this unisidedness we have the development of only one speech center which is almost universally located in the hemisphere which controls the dextral hand. The association between the centers which control the movements of speech and those of the preferred hand is very intimate.

2. Left-handedness is not a habit but is due to some structural peculiarity of the cerebral hemispheres. Whatever the nature of

this peculiarity it is responsible alike for the preference of one hand and for the location of the active speech center in one hemisphere.

3. Among left-handed persons, speech defects very often appear at a time when they are forced to change their natural left-handedness into artificial right-handedness. Some evidence is to be had showing that the defect disappears when a return is made to the use of the naturally dextral hand. The hypothesis may be advocated that the task placed upon the left hemisphere in such a re-education arouses the latent speech center here and results in a conflict of the two speech centers which manifests itself in speech defects such as stuttering and lisping.

4. Left-handedness should be encouraged where it is natural. Where a speech defect has occurred under such conditions, it is advisable to order a return to the use of the left hand. We are inclined to the opinion that speech anomalies are not the only undesirable consequence of this unnatural procedure, but are more apt to appear as using the right hand for writing, an accomplishment closely allied to speech, is the most common and first connection to be made.

When custom institutes reforms of *apparent* defects which produce *real* ones, it is time that Dame Custom change her ways. Sinistry should lose its unlucky connotations; rather it should be considered the unique, the different, the rather original way, and as we strive to attain this in many respects so left-handedness might better be considered boon than ban.

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TUBERCULOSIS OF THE LARYNX AND MOUTH.*

DR. WILLIAM WESLEY CARTER, New York City.

The patient, 46 years of age, a miner by profession, is from my clinic in Governeur Hospital. His family history sheds no light on his present condition. He denies specific infection, and says that he was perfectly healthy and strong up to two years ago. In March, 1914, he became hoarse and his throat became badly swollen and was so painful that he could hardly swallow. He lost his voice completely and his breathing was so obstructed that it was thought at times he would suffocate. He also developed a severe cough with profuse purulent expectoration.

At this time he consulted a laryngologist, who told him that the appearance of the larynx suggested tuberculosis, syphilis or cancer. The Wassermann test at this and at subsequent periods was negative. However, he was given, without beneficial effect, a course of mercury and the iodides. The sputum showed the presence of tubercle bacilli and the apices of both lungs were found involved.

About three months after the larynx became affected, an ulcer developed on the left buccal mucous membrane, near the angle of the lips; this rapidly increased in size and was very painful. The whole left side of his face became so swollen that his eye was almost closed. The patient was losing flesh very rapidly. He would cough all night and was expectorating large quantities of pus.

He entered a sanitarium in California, where he remained for several months.

His larynx became much better and his general health improved. The ulcer on his cheek, however, became worse. He went to Alaska to work, but the ulcer became so bad that he had to return. He then came to New York. Last November a specimen of sputum examined at Mt. Sinai Hospital showed tubercle bacilli in abundance. The larynx at this time was in a quiescent state. The ulcer on his cheek was actively inflamed and the whole side of his face was enormously swollen. A section of tissue removed from the margin of this ulcer showed tubercle bacilli, and the histological characteristics of a tubercular lesion.

*Read before the Section on Laryngology and Rhinology, New York Academy of Medicine, April 26, 1916.

Since last November, the mouth lesion has been treated with x-rays applied every two weeks. A marked improvement as regards the swelling was noticeable at once, but the ulcer was just as large and painful as ever.

The larynx shows the epiglottis one-third destroyed and a thickening of the ventricular bands and the vocal cords. The larynx is practically cured, or at least, it is in a quiescent state.

The patient's lungs are extensively involved. He has lost 43 pounds since his sickness began.

The case is interesting as showing a larynx apparently healed of tuberculosis, and a very extensive and active tubercular ulceration of the buccal mucous membrane.

It also demonstrates the futility of the x-ray treatment for tubercular ulcerations of the mucous membrane.

A year and a half ago I showed before this section a case of tuberculosis of the nose which had been greatly relieved, at least where the skin was affected, by the local application of orthochlor-phenol. I shall try it in this case. The condition also suggests the use of tuberculin.

69 West Fiftieth Street.

Two Cases of Fatal Wounds Involving the Carotid Vessels and Presenting Unusual Features. H. LAWSON WHALE, Proc. Royal Soc. Med., Laryngol. Sec., Jan., 1917.

Case 1: The bullet passed through both antra and the nose and then deeply to the left vertical ramus of the mandible. On impinging on the anterior surface of the left mastoid the bullet had turned downwards deeply to the carotid sheath and was found at autopsy lying exactly in the bifurcation of the common carotid.

Case 2: The bullet had traversed the left antrum and mastoid smashing the facial "bridge" with the rest of the posterior meatal wall. There was never any indication that the bullet had involved any large artery but on autopsy the external carotid was found completely severed at the point of its final division into the superficial temporal and internal maxillary. This hole in the artery was clean-cut and from it there was a blood track up to the post-aural wound. ED.

CHRONIC STENOSIS OF THE LARYNX, TRACHEOTOMY; DECANULATION AFTER A PERIOD OF 18 YEARS.*

DR. C. J. IMPERATORI, New York City..

The patient, M. S., aged 20 years, is presented before the Section with the interesting history of having worn a tracheotomy tube, continuously for 18 years. When 7 months old she became hoarse, and as her mother thought she had a cold, had her treated by several physicians for a period of about five months.

The child was brought to the Manhattan Eye, Ear and Throat Hospital, where a diagnosis of multiple papillomata of the larynx was made and unfortunately, was told that nothing could be done at that time, because of her age—13 months. Not being satisfied, the mother then began the rounds of the hospitals, where she usually was given some type of cough medicine. The child contracted a severe cold that produced marked dyspnea, and made her return hurriedly on the night of November 8, 1897, to the Manhattan where a tracheotomy had to be done by the house surgeon —Dr. Grant.

She remained in the hospital for about three weeks. Her age was then 26 months. About eight weeks after the tracheotomy she had rather a severe pneumonia, that lasted three weeks. During this attack she was very ill and the outlook was bad. However, she recovered and remained well until she was five years old, when she passed through an attack of measles and whooping cough.

When she was eight her voice was fairly good and she started in at school. During the day she breathed nicely with the hole in the tube covered. When night came and she would lay down it was always necessary to have the opening uncovered.

Just before and during the time of commencement of menstruation she seemed to get much worse for a period of some months. This passed off and gradually got better, so that she could wear a high collar and keep the opening of the tube closed most of the time.

She had a fairly good speaking-voice. The tube that she wore up to the time of decannulation, October 5, 1915, was the one or a similar sized one used at the original operation; that is a one-year size tube.

*Read before the New York Academy of Medicine, Section on Rhinology and Laryngology, Feb. 23, 1916.

On October 5, 1915, having been referred to me through the courtesy of Dr. J. A. Mulholland, she came to the clinic of Dr. Harmon Smith, at the Manhattan Eye, Ear and Throat Hospital. Previously, that is in the latter part of June, 1915, a direct examination of the larynx was done and a small piece of redundant tissue from the left vocal cord removed and examined microscopically. The pathological examination of the tissue showed that it was papilloma.

The examination at that time showed a fairly normal larynx excepting the left vocal cord, which showed some papillomatous material on the under-surface of the anterior two-thirds.

Under cocain anesthesia, with the patient in the suspension laryngoscope, a mass of papillomatous tissue was removed from the left cord, and also a spur of granulation tissue from the posterior wall of the trachea, opposite the end of the tracheotomy tube. The tracheotomy tube was replaced. On October 7, having decannulated her, put in a large O'Dwyer intubation tube and in order that she would not cough it out, a post was screwed on the tube as suggested by Schmiegelow.

The tube was kept in from October 7 to the 13th. During this period there was some difficulty in swallowing owing to the size of the head of the intubation tube. This might have been overcome by the small-headed tubes of Lynah.

On October 13, extubation was done and the tracheotomy wound which had contracted considerably was packed tight in an attempt to make the wound close from below upward, and also in order to see whether or not she could breathe through the passages.

On October 26, some granulation tissue was removed subglottic by the direct method, and she left the hospital within the next few days.

On November 9, examination of the larynx shows both cords moderately thickened—especially the left anteriorly. Anteriorly and laterally the trachea shows some granulations around the tracheotomy wound.

Reasons for presenting the case before the Section are:

First. The length of time tube was worn; that is, eighteen years.

Second. Reason for tracheotomization being papilloma sufficiently large to cause obstruction.

Third. Also, the fact that no surgical intervention had been instituted to remove the papillomata.

Fourth. The partial or complete rest of the larynx for the period of eighteen years did not retard or inhibit the growth completely

as one would usually expect. The amount of papilloma present when seen on October 15, was not sufficient to obstruct the breathing materially.

Fifth. As there had been several attempts made at different times to decannulate the patient but with negative results, it would seem that the reason for the above-noted failures were mainly due to panic on the part of the patient. In this case, the introduction of the intubation tube would seem to have acted to tide her over so that she did not experience this panic.

Jackson in his classification of difficult decannulation cases considers "panic" as a very important factor in the unsuccessful removal of a tracheotomy or an intubation tube.

17 East Thirty-eighth Street.

REPORT OF A CASE OF SEPTIC ARTHRITIS FOLLOWING A SUBMUCOUS RESECTION OF THE NASAL SEPTUM.*

DR. CHARLES J. IMPERATORI, New York City.

D. B. had a submucous resection performed on his nasal septum December 23, 1915. While the deflection was sufficiently marked to occlude the nostril on one side, the operation was not difficult and did not take longer than ten minutes.

No adrenalin was used during the operation, and gauze sponges were used to keep the field clean. At the completion of the operation the nostrils were packed with vaseline gauze, and the patient returned to the ward. Within fifteen hours this packing was removed, and the patient allowed to leave the hospital. He was not seen again for one week, when he came back to the hospital during the night complaining of a pain in the left knee joint and a temperature of 105. His knee joint began to pain him two days previously.

During the week following the operation he said he felt too weak to come to the hospital and he was attended by his family physician. He also stated that he had some bleeding from his nose and that it was necessary to treat it by the application of some medicine and later had to have the nostrils packed to stop the

*Read before the New York Academy of Medicine, Section on Laryngology and Rhinology, April 26, 1916.

bleeding. Of course, with the temperature, a septal abscess was suspected, but when the flaps were separated nothing was found. A few days later the flaps were further separated, higher up—and a little sero-sanguineous fluid came out.

It would seem that this may have been an infection secondary to the initial exploratory opening.

The temperature varied between 103 and 105. There was fluctuation within the knee joint on the second day of the patient's return to the hospital, which was the ninth day following the operation. Blood cultures taken at this time were negative. The joint was opened by a general surgeon. Considerable pus was found and an extensive destruction of the articular cartilages was manifest.

The patient made a gradual recovery and later a resection of the joint was done. Within two and one-half months the patient was discharged from the hospital with a stiff knee.

Reasons for reporting the case before the section:

First—No other demonstrable lesion that could be the focus of infection.

Second—Pain in the joint within five days after the operation. It is questionable whether it is possible to have a pathological lesion within a joint in such a short time.

Third—The seriousness of the complication, both from a medico-legal standpoint and also from an economic one.

17 E. Thirty-eighth Street.

Acute Pulmonary Abscess Treated with Artifcial Pneumothorax.

W. D. TEWKSBURY, *Jour Amer. Med. Assn.*, March 10, 1917.

Two cases are reported, the first a man 32 years old, the second, a woman 27 years old. In the first case the pulmonary abscess followed fracture of the superior maxilla and nose for which the patient was operated on; in the second case it developed after tonsillectomy. The author concludes that in view of the high mortality of acute lung abscess treated medically (60 per cent) or by rib resection (30 per cent), the latter operation often leaving a draining sinus for a year or more, artificial pneumothorax is a rational method of treatment in all cases having a communication with a bronchus. The two patients reported were cured. ED.

OSTEOMYELITIS OF THE SINUSES OF THE NOSE, COMPLICATING SCARLET FEVER.*

DR. H. L. LYNAH, New York City.

Beckie L., age 13, was admitted to the Kingston Avenue Hospital on March 30, 1915, suffering with scarlet fever and ethmoiditis of three weeks' duration. On admission, the child was examined by Dr. Raymond G. Laub, who noted that there was a marked abscess of the septum and boggy swelling, which occluded the whole of the left nasal cavity. The pharynx was covered with a dirty gray exudate, and the left tonsil and peri-tonsillar space were enormously swollen, and of a purplish hue. The left side of the face was covered with an erysipelatous blush. The left eye was protruding and the lids were opened with difficulty. There was slight ulceration of the cornea, though the vision for objects was fairly good. There was a profuse discharge of pus from the nose. The patient was in the post-scarlatinal stage and desquamating. A dose of 20,000 units of antitoxin was administered by the family physician before admission, for he suspected diphtheria as the probable cause of the nasofrontal duct infection and the orbital cellulitis. The temperature was 104°, pulse 136, respiration 26. There were no otitic complications. The abscess of the septum and also the large pointing peritonsillar abscess were incised by Dr. Laub.

The following day, I saw the patient. The nares was still occluded on both sides, owing to the abscess of the septum. The large peritonsillar abscess was due to pus which had dissected under the mucous membrane and was also pointing under the mucous membrane of the hard palate. The whole of the alveolar process was boggy with pus, and all of the teeth on the left side, from the posterior molar to the anterior incisors, were freely movable. The abscess was also pointing in the left cheek, and definite fluctuation was felt under the skin. There was marked exophthalmos of the left eye, and there was a fluctuating subperiosteal abscess at the inner angle of the eye. This abscess extended across the bridge of the nose and caused swelling of the left eyelids.

*Read before the New York Academy of Medicine, Section on Laryngology and Rhinology, May 24, 1916.

X-ray and transillumination showed all the sinuses of the left side of the head to be involved. The ethmoid and frontal sinuses were opened externally, the usual incision being made. The outer wall of the frontal sinus was necrotic. Both frontal and ethmoid sinuses were filled with free pus and cystic polypoid tissue. The sphenoid ostium was enlarged. The middle turbinate bone was not removed. The antrum was opend extra-nasally. The orbital wall was necrosed and perforated. There was a considerable gush of pus on opening the antrum, and much polypoid membrane was removed.

The frontal sinus wound was partly closed with Michel clamps, and a wick of iodoform gauze was passed into the ethmoidal wound and also into the nares. Chloroform oxygen anesthesia was used.

No. 1. Patient on admission showing marked exophthalmos which persisted even after the radical frontal, ethmoid and antrum operations.

Cultures and smears taken from the frontal sinus, ethmoid labyrinth, and antrum showed staphylococcus pyogenes aureus and streptococcus pyogenes. The eye was covered with sterile boric acid vaseline, and a wet boric acid dressing was applied.

The following day, the general condition of the patient had improved, with a temperature of 100°. There was no improvement in the exophthalmos, and the cornea was hazy; though in a bright light the patient could count fingers. An attempted fundus examination by Dr. Wootton was unsuccessful.

On dressing the wound, there was considerable free pus following the removal of the wick, which apparently came from the frontal sinus. There was, however, no fluctuation over this area. The wound was dressed every day. By the fourth day after the

operation the general condition of the patient had improved markedly and the exophthalmos was subsiding, but there was still considerable discharge of pus at each dressing, which could not be accounted for.

On April 4, two weeks after the operation, the exophthalmos became marked and there was considerable swelling in the fronto-temporal region, and also about the frontal sinus wound which was bulging. The child was sent to the operating room; the frontal sinus wound was opened and a horseshoe incision made in the temporal region after pus was located by a small incision. This large pocket of pus was the undoubted cause of the free evacuation of pus from the wound at each dressing, but as there were no

No. 2. Showing incision for enormous temporal abscess. The exophthalmus has subsided owing to rupture of the orbital abscess.

symptoms to form a guide and the temperature was normal, the second abscess which must have been present at the time of the original operation was absolutely overlooked. At this operation, the dura was found to be uncovered for an area of 3 cm. in diameter. There were also many large sequestra which were removed from the outer orbital angle, and part of the malar bone was rocked off. The whole area of bone about the temporal, as well as that of the frontal sinus, was necrotic. There was a large orbital abscess, and Dr. Wootton thought the globe of the eye would undoubtedly be lost. There was marked bulging and tension on the globe.

The day following the secondary operation, the temperature rose to 102.4°, but fell gradually to normal the following day. On

removing the dressings the day after the operation, it was noted that the exophthalmos had disappeared. On opening the lids, the cornea was very cloudy and ulcerated. The disappearance of the exophthalmos was further noted to be due to the globe of the eye having ruptured. There was a profuse discharge of pus, and the wicks seemed to block up the cavity and prevent drainage,—therefore two rubber catheters were introduced from the temporal wound and passed through to the ethmoidal fistula; and by constant irrigation with boric acid solution good drainage was established. A large wet dressing was applied.

On the third day after the operation, the sutures were removed, and as none of them had held the wound gaped open and presented

No. 3. Through and through catheter drainage which was the only method that allowed free drainage.

a rather sorry picture. Constant irrigations were maintained for a period of a week, after which time the tubes were removed and the wound was lightly packed with plain gauze. The wounds slowly healed, but there was a slight discharge of pus from the orbit, off and on, for about a month after the healing of the other wounds. The temporal wound has opened and closed from time to time, and there is a fistula which passes downward and backward, apparently under the frontal convolution.

The child has made an apparent recovery, but Dr. Hurd, who was good enough to see the case with me, tells me that he has never seen an osteomyelitis due to the streptococcus recover, and that sequestration and the multiple new foci of infection develop from time to time. It has now been over six months since the child has had any trouble, but she is still under constant observa-

tion. The sinus in the temporal region has been injected with bismuth paste from time to time and it closes, but a new pocket of pus will form and it again opens.

The plastic operation which was attempted after the dura had been covered with granulation tissue has resulted in a fairly good scar. There is a saddleback nose, due to the loss of the septum. The left cheek, in spite of the loss of part of the malar bone, is somewhat hypertrophied, owing to the enormous amount of infiltration in the cheek. The left eye is unfortunately lost, as the result of the enormous orbital abscess and the sloughing of the cornea; however, a small portion of the cornea remains. The orbit ruptured

No. 4. The enormous area of dura uncovered. After granulating the plastic operation removed the greater part of the scar, and at the same time made a firm dural covering.

through the cornea, and for a long time pus drained from the globe through the sinus in the anterior chamber.

I would be glad to have any suggestions which may be made about the further care of the case. An artificial eye will be set in, as there is a fairly good stump for it.

Repeated Wassermann and tuberculin tests were all negative. Antisyphilitic treatment was administered with an endeavor to provoke a positive Wassermann, but this treatment only upset the patient, and it was discontinued.

127 West Fifty-eighth Street.

CALOMEL FUMIGATIONS IN THE TREATMENT OF CONSTITUTIONAL AND LOCAL CONDITIONS. A SIMPLE APPARATUS.*

DR. EDWARD J. BROWN, Minneapolis, Minn.

The *Deutsche medizinische Wochenschrift*, May 13, 1915, has an interesting paper by Dr. Jul. Frankenstein, with description of a rather elaborate apparatus for the inhalation of the fumes of a superheated mercury amalgam, the fumes to be inhaled either with compressed air or carbonic acid gas. He mentions one case, the diagnosis confirmed by the presence of spirochetes, in which after twenty inhalations there was a negative Wassermann, which was also negative one year later. As a result of nearly three hundred cures effected by this method, and in view of the various inconveniences and dangers of other methods, he warmly commends that of inhalation.

Calomel fumigations were formerly prominently mentioned by British writers as a means for mercurialization. That this method has not been more frequently availed of is probably due to the lack of a convenient apparatus. The English used the fumigations as a substitute for inunctions, the fumes being either absorbed through the skin or sometimes inhaled in a closed room.

During the past summer I modified my hot air apparatus, described in the *Journal of the American Medical Association*, June 21, 1913, by the substitution of a bunsen burner as a source of heat, and the introduction of a three-inch section of iron tubing of half-inch bore to admit a small phial for the calomel. By a reducer six inches of quarter-inch tubing is connected with the tube containing the calomel, and the latter by a short rubber tube connected with a conical nasal tube of glass, or the fumes may be thrown directly into a large glass tube held in the mouth. The fumes from the vaporization of any salt of mercury or the metal itself are more or less irritating to the throat and bronchi. In my earlier work I used the mouthpiece and, to avoid the irritation, at the same time I threw through one naris a fine vapor of a camphor-mentholated oil. This obviated the objection of irritation to throat and chest but was so objectionable to some patients that in my later work I have used the nosepiece altogether. By using a minimum of air irritation is avoided and efficient doses may be administered in sittings

*Read before Hennepin County Medical Society, May 1, 1916.

of from ten to thirty minutes. The English used calomel for fumigation purposes because it was vaporized with less heat than other salts of mercury, and I have used it for the same reason. A writer whose name I have lost, speaks of vaporizing a mercury precipitate by passing through it suspended in cotton in a perforated glass capsule, a current of air heated to 150 C., but I know of no precipitate of mercury, which vaporizes with as low a temperature as calomel. Applying the heat from a bunsen burner to my apparatus cold fumes of calomel will be deposited on a cold glass slide within three minutes; the fumes of mercury and chalk in four minutes, but much less profusely; the fumes of yellow oxide of mercury in six minutes. Both the gray powder and the yellow oxide give off fumes which are possibly less irritating to the throat and lungs than those of calomel but they are given off more slowly and require more time. I find that fifteen grains of calomel will have disappeared in forty-five minutes, while in the same time only one-third of the same weight of yellow oxide will have been vaporized, and the remainder will have apparently changed chemically to a more reddish yellow and ceased to yield vapors. My cases have been treated with calomel.

Mrs. X. was treated by me for specific iritis and deep ulceration of the tonsil seven years ago, being at the time and for some time afterward, under the care of the family physician who gave her mercury and postassium iodid. She had another iritis three years ago while in a distant part of the country. She came to me in September, 1915, complaining that she had had a cold all summer and, for three weeks past, pain, tenderness and some swelling of the tissues in front of the right antrum, apparently a periostitis of that part of the superior maxilla. There was a deep ulcer of the septum and also of the inferior turbinal of that side. In addition to local treatment inunction of mercurial ointment was ordered. After eleven days, as family conditions made the inunctions practically impossible, I suggested inhalations. These were begun on September 21 and after six inhalations the local signs had entirely disappeared. On December 10, after forty-five inhalations the Landau color test was negative. She had been very active as housekeeper but had nevertheless gained in weight and general feeling of well-being.

Z., 28, barber, consulted me December 4, 1915; had had irritation in throat and cough for a long time, getting worse of late, especially since a local treatment by some physician. No specific history but had gonorrhoea five weeks ago. I found no spirochetes

but the Landau color test was positive. There was a small ulcer on each side of the base of the uvula, also a mucous patch on the soft palate. He was given calomel fumigations daily for from ten to twenty minutes, and after seven inhalations the throat was healed, he was feeling well and had greatly increased appetite for his food.

He had a large adenoid and suppuration of the ethmoid on the right side. The adenoid was removed and the ethmoid treated with hot air, negative pressure and the injection into the vacuumized sinuses of hot calomel vapors. After ten weeks the vapors were used only once a week and the patient was given a twenty-five per cent calomel-kaolin powder for insufflation, and for internal use a solution of arsenic trioxide. On March 30, he appeared perfectly well including his ethmoiditis, though there was a large plaque on his tongue, of which he made no complaint. A Landau color test some days before had been positive. A luetin test in April was negative.

Mrs. V. has suffered from double ethmoiditis and left antral suppuration for five or six years. After I had removed polyps and exenterated both ethmoids there was great improvement in the condition, but the antral suppuration persisted in spite of much irrigation with alkaline wash, later with alcohol, and still later with air douche followed by hot air and iodoform vapors. Then for some weeks kaolin powder was blown in after the use of the air douche. This lessened the discharge, which had been either increased or uninfluenced by the previous treatments. After some weeks of this I introduced the vapors of calomel once and dry calomel powder five times, completely curing the discharge in two weeks. The cure has persisted in spite of a severe cold during the grip epidemic of December.

B., 24 years old, has had double ethmoid and antral suppuration for years. The ethmoids had been exenterated and the left antrum widely opened. He had washed the antra and insufflated boric acid, for a year past, with only temporary and moderate benefits. The left fronto-nasal canal had also been enlarged by rasps. One insufflation of calomel powder into all three sinuses after the air douche produced a marked effect upon the suppuration, and incidentally a moderately severe purging. To guard against excessive dosage of the calomel it was ordered as a five per cent powder in boric acid to be used with moderate freedom. The patient has spent the winter in the northern woods without a single serious cold and writes on April 8: "I have not used the powder very regu-

larly but only as I felt the need, when any congestion of the nasal passages came on, and it has always given me relief so that I have had very little trouble."

H. R., 39 years old, came on September 13, suffering from meibomian styes and marginal blepharitis of the left upper lid. After eight treatments including opening of cysts and cauterizing of lid margins with carbolic or strong solution of silver nitrate, with hot fomentations, boric wash and yellow oxide of mercury ointment at home, the eye got better and treatment was discontinued. On November 21 he returned with the lid worse than ever. The lashes had previously been clipped and this was now repeated, and after the removal of the crusts the lid was exposed for ten minutes to the hot calomel vapors. This was repeated on November 23 and 25 with remarkable improvement. On December 3 there were only two small scales and on December 8 the eye was apparently well with the exception of slight thickening of the lid.

It has long been known that calomel is one of the most powerful germicides, and when it is used in the nascent form in connection with hot air it is reasonable to believe that there is a large field where it may be employed with remarkable results.

Dr. Lewis A. Coffin, in the November, 1915, issue of THE LARYNGOSCOPE, and Dr. Harmon Smith (*American Laryngological Association,* June, 1915) report the employment of negative and positive pressures alternately in the treatment of nasal sinus diseases, the positive pressure forcing oil nebula loaded with either chemicals or lactic acid bacilli into the vacuumized sinuses. I have found my apparatus perfectly adapted to that purpose. Instead of the variously loaded oil nebula, however, I have used the hot vapors of calomel.

While experimenting with the mercurial vapors to determine how they might be inhaled with the least irritation to the throat and lungs, I inhaled the fumes through my nares perhaps a half dozen times and not to exceed a half minute on each occasion. I had myself had a chronic right antral suppuration of many years' standing with evidences of right and left ethmoid disease of sufficient severity to have caused a small positive para-central scotoma on the right. In spite of anterior middle turbinectomies, and various forms of treatment, the most effective of which was that by hot air and negative pressure, the discharge persisted, could be removed by posture and negative pressure, and often drained suddenly with a favorable position of the head. You can imagine my surprise when after these inhalations of the calomel fumes, I

discovered that my trouble had entirely disappeared so far as any signs of suppuration were in evidence.

I had for many years suffered from a mucous colitis, frequently accompanied in late years by obstipation, pain and mucus discharges. I had attributed the trouble to infection from the nasal sinuses, and consequently was not surprised to find improvement following the arrest of the sinus disease. However, in January, following a mild rhinitis, there was a sharp attack of the colitis with pain and obstipation. Following an irrigation of the colon, which brought no fecal results, I forced into the rectum with a bicycle pump the hot vapors of ten grains of calomel, occupying probably seven or eight minutes, massaging the abdomen and using sufficient force with the pump to cause slight discomfort. The next morning there was a free and fairly normal movement and such movements have continued ever since with scarcely a suggestion of the old trouble.

Mr. C., 64 years old, a business man, with negative history except having had a gonorrhoea about his thirtieth year, came to me in December complaining that he had had a slight burning of the right side of the throat extending down the neck for two months, worse for four or five weeks. He had a slight morning cough with the raising of a little whitish secretion. There was tenderness to pressure of the region of the thyroid cartilage and the glands in front of the sterno-mastoid were somewhat enlarged and tender. There was a perforation of the nasal septum and evidence of posterior nasal sinus disease. The neck was short and thick and the epiglottis so deformed that I got very unsatisfactory views of the larynx and subglottic region, and the examination was negative. He submitted to a Wassermann which was negative but the Landau color test was positive. I told him the trouble was probably a subglottic one and either specific or malignant. While we were waiting for the Wassermann, I suggested calomel inhalations, as he did not wish to use inunctions. He came December 28 and on January 3 he had had three inhalations of about ten minutes each, with the result that all tenderness and pain of the throat and glands had disappeared. I then gave him a longer inhalation (combined with the oil vapor which he did not like). As he refused further treatment of that kind I persuaded him to insufflate a twenty-five per cent calomel-kaolin powder. As the Wassermann was negative he refused further treatment, saying he was all right.

I have ordered the twenty-five per cent calomel-kaolin powder in several specific cases for home treatment with apparent good results.

One case of tubercular sinus of the face, which had resisted for a long time injections of tincture of iodin, was promptly and remarkably improved by a single application of the calomel vapors.

I have used in a considerable number of cases of suppurative and infective nasal diseases the five per cent calomel-kaolin for insufflation, and have directed patients with sinus disease to use the powder freely in addition to the alkaline wash and making frequent daily use of negative pressure by closing the nose and mouth and strongly inhaling. Drainage is at the same time favored by posture, on either side for the lateral sinuses or with the head bent strongly forward for the sphenoids. The results have been decidedly good.

In addition to the alkaline wash which I have for many years advised school children to use as a prophylaxis against school infections, I have lately advised the free use of the five per cent calomel-kaolin. If as S. A. Friedberg (*Journal American Medical Association*, March 11, 1916), claims, diphtheria cases clear up more quickly when kaolin powder is freely used in the nose and throat, it is an entirely reasonable proposition that all these infectious diseases may be either prevented or favorably modified by the use of a much stronger and equally bland germicide, to which children make not the slightest objection.

Since this paper was written I have had the following case of frontal sinusitis: J. C., 24 years old, a university student, came on March 12 with severe headache and a temperature of 100°, pain and tenderness of the left frontal region. He had had grip ten days before but had apparently been as well as usual for some days. He had some slight sinus discharge most of the winter, part of a chronic trouble for which the anterior ethmoids had been exenterated. He was given a dose of calomel and an injection of one-twentieth cc. of the Mulford mixed influenza bacterin. The frontal sinus was probed under cocain and epinin and after the use of hot air and negative pressure, calomel was blown into the nares. March 13 the morning temperature was 96.5°, and he felt much better. At 6 p. m. the temperature was 100°, and he had had severe pain for some hours. The sinus was catheterized, washed with alkaline solution, dried with hot air, and the vapors of five grains of calomel slowly passed through the catheter. On the fourteenth he felt well; no pain or tenderness, temperature normal; he can easily exhaust the discharge from the sinus by closing the nose and mouth and inhaling. Only a small amount of discharge at any time. On the sixteenth temperature 97°; had slight pain yesterday, and on the

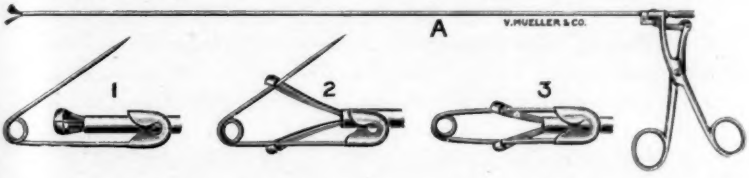
sixteenth, eighteenth and nineteenth hot vapors were given after negative pressure. Practically no discharge. On the twenty-first, hot vapors after catheterization and air douche. On the twenty-second, alkaline wash through the catheter followed by alcohol, hot air and calomel vapors. On the twenty-fifth, no discharge or tenderness. Repetition of alcohol and vapors. On March 6 the patient reported that he was perfectly well. That the disease of the frontal sinus was a chonic one was shown by the chronic discharge and the fact that the other sinuses were apparently not involved.

524 Syndicate Building.

NEW SAFETY-PIN CLOSER FOR ENDOSCOPIC USE*.

HUBERT ARROWSMITH, Brooklyn, New York.

This pin closer was devised for simplifying the removal of safety pins which are among the most difficult foreign bodies that the surgeon is called upon to extract from the air passages. It is to be commended for its extremely simple construction and its small size, being only 3 mm. in its greatest diameter, which makes its introduction through the 5 mm. bronchoscope easy and gives plenty of



room for ocular control in the larger tubes. It is manipulated by one hand. Its grasp is sufficiently strong to dislodge any pin that may have penetrated the tissues and it does not matter whether or not the pin is locked on withdrawal, as its point will be perfectly guarded by the forceps. Most of the old pin closers require the use of both hands and are too large for use through the smaller tubes. This instrument will overcome these objections.

170 Clinton Street.

*Presented before the New York Academy of Medicine, Section on Rhinology and Laryngology, October 26, 1916.

TWO UNUSUAL CASES OF MASTOID DISEASE WITH SEVERE COMPLICATIONS, OPERATIONS, RECOVERIES.*

DR. J. CLARENCE KEELER, Philadelphia, Pa.

The first case is one of chronic mastoiditis complicated by a palsy of the left facial nerve, an unresolved unilateral broncho-pneumonia, pericardial effusion with adhesions to the parietal pleura and bilateral suppurative cervical adenitis, with operation under ether, followed by recovery.

The second case is one of bilateral mastoiditis complicated by a bilateral bronchopneumonia, circumscribed meningitis, with recovery after operation under ether anesthesia.

Case 1. Lillian C., age 3, was admitted to the Jefferson Hospital, August 5, 1915. Diagnosis: Chronic mastoiditis, left side, and palsy of the left facial nerve.

The family and personal history revealed nothing of significance except that the patient had had one attack of whooping cough.

Examination of the *head and neck* showed nothing abnormal except a scar on the back of the neck, which seemed to be the result of a glandular suppuration, probably tubercular.

The *right ear* was normal.

The *left ear* was discharging. There was a large tumefaction over the left mastoid. The *tympanic membrane* had a large central perforation with granulations extending into the auditory canal. A slight mucous nasal discharge was present. The *teeth* were poor; the *tongue* coated. The *pharynx* was injected. The *tonsils* were moderately enlarged. The *submaxillary* and the *posterior cervical glands* of both sides were enlarged, but the left the more so.

Thorax: Expansion was fair. On percussion there was impaired resonance at the left apex. The breath sounds here were almost tubular, but there were no rales upon deep breathing.

The *apex beat* was outside the nipple line at the fifth interspace. The cardiac rhythm was imperfect and influenced by respiration. The first sound was of fairly good tone; the beat frequent. There were no murmurs or thrills.

The *abdomen* was large and slightly tympanitic, otherwise normal. The *face* was of the Angelic type, very pale and icteroid. There

*Presented by invitation, before the Section of Otology and Laryngology, College of Physicians, Philadelphia, December 15, 1915.

was loss of muscle control on the left side, assymmetry exaggerated by laughing or crying. The closure of the left eyelid was incomplete. There was salivary dribbling on the left side.

A radical mastoid operation was decided upon August 6, 1915. After the usual preparations, an incision over the mastoid opened into a large collection of foul-smelling pus and exposed an extensive erosion of the cortex, through which granulations extended. That portion of the bone in front of the erosion, to the floor of the tympanum, which represented the posterior osseous auditory canal, and a portion of the mastoid cells with the facial canal extending through it, composed a sequestrial mass. This mass was removed. Cholesteatomatous masses were also found. The malleus and incus and the facial nerve were not seen. They had evidently been destroyed by the suppurative process. The stapes was in position. After the exenteration of the remaining necrotic cells, the Eustachian tube was cauterized with phenol. The posteriol cartilaginous canal was divided and the flaps made in the usual way. The necrotic soft parts over the mastoid were removed. The field was cauterized with phenol. The skin over the posterior portion of the mastoid was dissected up in order to secure approximation. The mastoid cavity was packed with three small pieces of iodoform gauze and allowed to drain through the auditory meatus. The wound was closed posteriorly with a row of deep interrupted cat gut sutures and then by a row of linen, through and through sutures. The ordinary mastoid dressings were applied and the patient was returned to the ward, where she received supportive treatment.

August 7. Laboratory reports of the cultures taken from the ear, at the time of the operation, showed *micrococcus aureaus* and *albus* and *bacillus pyocyaneous.* The Wassermann and Widal reactions were negative. ,

The blood examination showed a slight leucocytosis and hemoglobin 60 per cent.

The linen stitches were removed four days after the operation. The wound was clean and healing by first intention.

Eighteen days after the operation an examination of the thorax revealed a larger area of dullness. Fine crackling rales were heard on deep inspiration. A suppressed cough was present but there was no complaint of pain.

On August 27, a vaginal discharge was detected by the nurse. Microscopic examination showed Gram negative intracellular diplococci. The patient was isolated at once. At this time there were superficial areas of ulceration on the neck and on the right ear.

Smears made from these lesion revealed micrococci but no tubercle bacilli.

September 1. X-ray report: The heart is somewhat enlarged and considerably displaced to the left. There seem to be adhesions between the parietal pleura and the pericardium.

September 4. One month after the mastoid operation, the cervical adenitis became extensive and had evidently broken down. After evacuation of the pus, the temperature gradually returned to normal and recovery was then uninterrupted. The patient was discharged November 19, 1915.

This case is of special interest for the following reasons:

1. Because of the preservation of the stapes and the remarkable resistance of the labyrinth to the prolonged infection which caused so much destruction of the surrounding tissues.
2. Because the facial nerve did not become involved until the ear had discharged continuously for more than one year.
3. Because the vaginal infection is unusual.
4. The heart and lung conditions existed at the time of admission.
5. While the temperature was highest and the pulse the most frequent, there was present a distinct cervical, glandular, suppurative process.
6. The bronchopneumonia and the heart lesion were apparently not unfavorably affected by the administration of ether.
7. The fortunate external rupture prevented possible intracranial complications.
8. The facial paralysis and the consequent disfigurement will be constant reminders of the evils of procrastination.

Case 2. Samuel D., seen in consultation, April 24, 1915.

The patient was 18 months old and suffering from a bilateral bronchopneumonia and meningitis. There was a history of discharge from the left ear since the last six months.

The temperature was 105, pulse 160, respiration 65. Body in opisthotonos; eyes rolled far up and the pupils only partially visible.

An examination of the right ear had not been made. It presented a red, bulging tympanic membrane, which was immediately incised under local anesthesia. Pus fairly squirted out of the auditory canal.

Twelve hours later the temperature had fallen to 103°. During the following night, however, it had again risen to 104°. Simple bilateral mastoid operation was advised in spite of the presence of

the double bronchopneumonia, in order to prevent, if possible, the meningitis from becoming septic.

On admission to the Jefferson Hospital, where she was then sent, the temperature was 104.8°, pulse 160, respiration 26.

When brought into the operating room, the patient was in a moribund condition. There was a thick mucoid exudation on the eyes. The face was ashen and the appearance cadaveric.

Oxygen and restoratives were administered. The right mastoid when opened was found filled with pus under pressure. After complete exenteration of the mastoid cells a communication was established through the tympanum and the external auditory canal. The mastoid cavity was packed with iodoform gauze, freely drained and closed with interrupted linen sutures.

The left mastoid was opened and found full of granulations. There was an erosion through the tegmen antri leading to the middle fossa of the skull, where an extradural abscess was found.

A complete exenteration of the necrotic mastoid cells was made and a communication was established between the tympanum and the auditory canal. The wound was dressed similarly to that of the other side.

Very little ether was required because of the patient's comatose state. Realizing that time was an important factor, only twenty-four minutes were consumed in the operating room. Reaction was slow. Oxygen was administered, heart stimulants given and artificial heat applied. On the following day, the patient was sent to the roof garden for open air treatment of the pneumonia. An improvement was noted at the end of forty-eight hours.

The dressings were changed daily.

Two weeks after the operation, a small abscess on the left arm was opened by the resident physician, after which the temperature became normal and progress toward recovery went on rapidly.

The patient was discharged one month after the operation.

Some of the interesting facts of this case follow: Double bronchopneumonia concurrent with bilateral mastoiditis terminated in recovery, only in a few reported instances.

The meningitis was fortunately circumscribed and was not purulent as the examination of the spinal fluid, one day after the operation, showed.

The case teaches the importance of examining both ears. In this patient the right one had been overlooked.

The value of rapidity of operation on cases of this serious character cannot be overestimated.

No matter how hopeless the patient, suffering from middle ear disease with mastoiditis may appear to be, and no matter what complications may be present, it would seem from this case, that it is good surgery to operate and to relieve the pressure as soon as possible.

I wish to express my thanks for the aid given to me by the Jefferson Hospital laboratories and by my colleagues.

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254 South Sixteenth Street.

FRACTURE OF THE TYMPANIC PLATE OF THE TEMPORAL BONE.*

Dr. J. Clarence Keeler, Philadelphia, Pa.

Fractures of the tympanic plate of the temporal bone are so rare that many of the leading text books either on surgery or on otology fail to mention the condition.

This fracture occurs as result of indirect force, the condyle of the mandible being driven backward with great force against that portion of the posterior wall of the glenoid fossa, which forms the anterior wall of the bony auditory meatus.

Warren and Gould[1] describe a case in which a blow on the point of the chin fractured the anterior walls of both right and left meatuses, closing each meatus about one-half.

Similar cases are reported by Schwartz[2] and Beach[1]. Boyer describes a case in which the condyle of the mandible was driven through the meatus into the middle fossa of the skull.

Kerrison reports the case of a young lady, who, while falling in a faint, struck her chin and fractured the left tympanic plate by the indirect force. There was bleeding from the left ear with inflammation, but without rupture of the tympanic membrane. There

*Read before the Philadelphia Laryngological Society. February 1, 1916.

was no impairment of hearing. There was a linear laceration along the floor of the bony canal without involvement of the deeper portion of the bone.

In 33 cases of fracture of the walls of the meatus, of the superior and posterior as well as of the anterior wall, fifteen were due to violence on the chin or on the ramus of the mandible.

The case presented is M. W., a girl, age 17, who was thrown from a motorcycle in July, 1914, landing on her chin. She regained consciousness twenty-four hours later and complained of intense occipital pain, worse when in the supine and lessened when assuming a semi-recumbent posture. She was unable to sit up, unassisted until after two weeks or to stand alone until after three weeks. The mandible was fractured at the symphisis. The two right, upper, incisor teeth were broken. There was bleeding from the left ear for forty-eight hours, at first profuse, then gradually subsiding. Five weeks after the accident the patient applied for treatment at the ear dispensary of the Jefferson Hospital. There was pus in the left auditory canal. The tympanic membrane was lacerated. There was an irregular, inflamed elevation on the floor of the canal, obstructing half its lumen. The right ear appeared normal. There was distressing tinnitus and loss of aerial conduction. Weber's test to the injured side.

The patient has recovered from the middle ear infection and her hearing is restored. The x-ray plates show the fracture at the symphisis, the broken teeth, a fracture of the left condyle of the mandible and a fracture of the tympanic plate of the temporal bone with upward displacement.

254 South Sixteenth Street.

Chronic Multiple Arthritis, Due to Bacillus Mucosus. GEORGE F. DICK, *Jour. Amer. Med. Assn.*, Feb. 24, 1917.

Two cases of chronic multiple arthritis have been described which resemble each other in every way. From the throats of both these patients there were isolated bacilli of the same group of Perkins' classification of *B. mucosus.*

On intravenous injections into rabbits, the bacilli constantly produced an experimental arthritis which varied from an acute hemorrhagic inflammation to a chronic deforming arthritis. ED.

EDITORIAL DEPARTMENT

PERORAL ENDOSCOPY AND LARYNGEAL SURGERY.

DR. CHEVALIER JACKSON, Philadelphia, Pa.

TONSILLOSCOPY.

The newest form of peroral endoscopy is tonsilloscopy. While the tonsil was the first studied of all the tissues within the sphere of the rhino-laryngologist, yet there has always been a vagueness in the mind of most of us, clinically, as to what, in certain border line cases, constituted disease considered apart from mere size. It has been no uncommon thing in a border line case for one competent man to state that the pair of tonsils in question were diseased and should be removed; while another man, equally well trained, would as firmly insist that the tonsils were practically normal. Such are the results of surface inspection. Histological studies have been extensive; but biopsy is of limited usefulness. What has been most needed is a means of examination of the interior of the living tonsil. Hence it is interesting to note that a new and promising field for such clinical study has been discovered and developed by the ingenuity of Dr. Thomas R. French.* The tonsil is examined, in situ in the living by the transmitted light of a pair of small electric lamps that are placed behind the tonsil. The tonsilloscopic tube carrying in its proximal end a lens of from five to eight diopters, according to the visual needs of the tonsilloscopist, is placed against the anterior surface of the transilluminated tonsil. It would be a great injustice to the new method to attempt here to epitomize the various appearances seen in disease as contrasted with those of health. The matter is too important to risk misrepresentation. Everyone should read the description in full as written by the author, and should then educate his eye to the perception of the distinct differences between health and the various phases of disease. Fortunately this is very readily done by Dr. French's method of "external tonsilloscopy." After removal tonsils are examined by the external tonsilloscope and the appearances compared with the subsequent tissue examination. Everyone is not blessed with the delicate sense of artistic color perception possessed by Dr. French; but anyone can educate his eye to perception of the differences between the normal and abnormal tonsilloscopic appearances. These have been codified by Dr. French into six classes. In addition to a description of the technic of tonsilloscopy he gives, from the study of the tonsil in 333 cases, interesting data that are invaluable to all who have to deal with tonsils.

*The Tonsilloscope, by Dr. Thomas R. French, New York Medical Journal, May 20, 1916.

SOCIETY PROCEEDINGS.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY,

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Twenty-second Annual Meeting, May 5 and 6, 1916.

White Sulphur Springs, West Virginia.

The President, DR. S. MACCUEN SMITH, Philadelphia, *Presiding.*

(Continued from page 144.)

"This necessitates the classification of sound to the region of the tympanic cuspoid. For example: Let us assume that C (256) affects the drum near the periphery, while C (512) affects it near the center. Then any sound having a vibratory frequency between 256 and 512 will affect the drum at some point between. The sounds recorded on the drum are annular but not circular, since the drum is eccentric. It follows then that all the sound which the ear is capable of recording must be recorded between the periphery and the vertex at certain definite points.

"In other words, each portion of the drum responds to a certain rate of vibration which is transmitted to the middle ear by the ossicles.

"Thus any injury to the periphery of the tympanum would tend to cause a deficiency in recording the vibration corresponding to the portion.

"According to Dr. W. Sohier Bryant, of New York, the average 'compass of sound conception' in the human being is between 28 single vibrations per second and 100,000 single vibrations per second.

"Now if a straight line be drawn from the vertex to the periphery of the tympanum, and this line be measured, he can mathematically determine the space given to each separate sound upon the drum. This may seem impractical, but it is given to introduce the following dependent discussion.

R—Range.

H—Highest sound capable of being perceived.

L—Lowest sound capable of being perceived.

D—Distance from drum vertex to periphery, .5625 cm.

X—Distance devoted to each particular sound.

N—Frequency of vibration of the note in question.

"X is destined to be very small distance because of the large number of sounds which have to be accommodated in a small distance.

"In a similar manner the exact position of X can be determined on the line from the simple proper form (H—MX—M) where M is the distance along D measured from the vertex of the cuspoid drum.

"By being able to produce a sound of any pitch and intensity or key which can be accurately measured, why is it not possible to determine just what portion of the cochlea is not functionating or responding?

"It will be in the middle of the spiral of the cochlea if sound fails in the normal octave that we hear. In the upper portion of above the recognized octave. Or in the vestibule if there is a lack of balance. I

have just asked the question of all present who have done lumbar punctures if they have ever observed epilepsy later, as I have heard of its cure.

"As we know, epilepsy is a falling sickness and is accompanied by an aura of violet to blue and sometimes other colors. Is there not, then, an axis depending upon the spinal and arachnoid fluid and its bipolar relation to the perilymph and endolymph to be determined and recognized in the disturbances of epilepsy? By more specific study a possible cure could be established even to such remote procedure as a removal or rearrangement of a utricle or saccule.

"Furthermore, as I have been able to establish a seven-fold pathway for voice which is heard by the ear, hence by recognizing the factors new diagnostic methods of great value can be established by those who use human ears and human voices as their standard, which, as Dr. Harris says, is at present the best guide.

"Regarding the statement that hearing reduced 1/30 of the normal, the auditory center receives only 1/3 of the normal impulses I believe is misdirected.

"Let us take, for example, the pyramid of the nasal chamber on one side. This pyramid is divided into three small pyramids by the turbinate bones. Thus we have twelve functionating surfaces instead of three. So, too, the oral cavity being one chamber on a double pyramid is divided into twelve surfaces by the tongue and palate.

"It is not reasonable, then, to assume that the tympanum can be divided into 1/12. Last, each ossicle may represent the hypothenuse of a Pythagorean triangle, acting in such a case as a lever with the ratio 3, 4, and 5, hence each ossicle would represent a conducting power of 1/5 or a total of 3/5. Hence we have a series of possible combinations of twelfths and fifths, depending upon the extent of the loss of function.

"Pneumo-massage, if properly administered, tends to act as a circulatory stimulant by increasing or decreasing the rate of blood-flow by its action through the pressure on the vessel walls. Also the general circulation of the head seems to be toned up.

"As a suitable instrument for testing the ears, in view of the fact that different parts of the drum are affected in different places, tests for deafness must be made accordingly.

"It has been one of my contentions on every side that a method of standardization must be resorted to before we are able to really approach any goal of perfection, especially any phenomena connected with human voice and ear.

"Most of the ear tests in use to-day are very poorly suited for the human ear. A test should be made by a machine or instrument capable of producing continued sound or sounds, either simple or compound, of any desired amplitude or frequency. The machine must be capable of producing sounds of different pitches or volumes in rapid succession. Such a machine should come as near the human voice as possible. It would make a better testing machine than the human voice, as the human voice suffers fatigue, etc., all of which might alter pitch, power, or resonance, or all three.

"The modern tests of Rinné, Galton, etc., all fail to fulfill some part of the requirements. In the Galton whistle the sound is not continued nor

can it be controlled as it should. In tuning-fork tests the amplitude of the fork varies with the operators because no two operators strike the fork alike, nor does the same operator strike it always with the same force. Similar objections are to be had with most other tests.

"I have invented an electric sound-producing system which I believe satisfies all the requirements set forth by Dr. Harris for a mechanical device. It is a useful and accurate method of testing as I have found.

"By varying the resistance of the capacities of the condensers on the circuit any desired pitch may be obtained. By using variable condensers notes are easily obtained. The intensity can be varied rapidly by altering the current. Notes of any desired frequency and amplitude may be produced as rapidly as desired. Its pitch is controlled by condensers while its volume is electrically controlled by a rheostat. A constant supply of current makes its operation continuous. The pitch may be altered to suit any special case by merely changing the capacity of the condensers. It is of a modern type and arranged like a piano, the number of keys may be increased up to as many octaves as desired, equal to the range of the voice.

"I have had a device designed by a well-known musical instrument concern to produce sounds and the corresponding color to be used both in auditory re-education and auditory testing. Owing to expense and complexity of the machine it was discontinued. Instead, the audion device was used with unusual success. The audion has not as yet reached its completeness for by a change in filament I have succeeded in producing a three-fold amplification. This allows an increase in intensity or volume for testing the ears of the deaf. This machine is in working order at the present time.

"In closing this paper I wish to cite the advantages of Meyer-Rowan machine over the Maurice from my personal observations and experience.

"The Meyer-Rowan is the only machine which conveys the blow of the same impulse as nature dictates, using all fundamental tones.

"While the vibrations produced by the Maurice machine are dissonant and do not convey the distinct sound-taps to the eardrum which can be regulated at will by the Meyer-Rowan machine.

"The practicability of treatment is indicated by the fact that every patient treated has been benefited, inasmuch as the hearing distance has increased 10 per cent to 90 per cent, and in occasional cases restored to normal.

"In cases where the patients have taken the required number of treatments I can safely state improvement in hearing has been over 50 per cent.

"The failure in obtaining results by the use of the Meyer-Rowan machine is due either to a lack of knowledge of the possibilities of the apparatus or their proper application. I have now five hundred and three detailed reports in my hands of legitimate cases from which these conclusions have been drawn which I can supply to you should you so desire, showing quite decidedly the good results produced by instrumentation and dactylization in its beneficent action in auditory re-education."

DR. MAX A. GOLDSTEIN, St. Louis, Mo., approached the subject from another physics point of view. Tyndall had said that light, heat, sound and electricity are all modifications of the same wave of motion; also, that all the special senses are modifications of the sense of touch. All

the instruments for the re-education of hearing, which were simply modifications of regulated sound-producers, were but means of conveying tactile sense impressions to the ear which was temporarily impaired in some way. Whether impaired by otosclerosis or some other affection, the mechanical principle involved was not changed,—it simply meant mechanical stimulation of the auditory nerve which has been temporarily impaired. If some mechanical machinery were required for the re-education of the auditory nerve, why not go further and say that the best instrument for this purpose is the human voice? That was the principle which Urbantschitsch employed. Seventeen years ago the speaker had presented, before the American Academy of Ophthalmology and Oto-Laryngology, in St. Louis, some children who had been treated in this way. After all, it was just as much the responsibility of the otologist to perfect the method in this regard as to perfect the technic in pathology or surgery. Dr. Harris had touched upon one class of cases—those who, from otosclerosis or other disease, had become socially defunct individuals, —in which his own experience was very unsatisfactory. The result could not be maintained unless the stimulation of the auditory nerve was continued. In cases in which auditory nerve deafness had been determined, patients had taken up speech-reading, substituting the sense of sight for the auditory sense. He cited the case of a little girl of eight, who, by actual functional tests, was proved to be absolutely deaf. According to the parents, the child was born deaf, and this was borne out by the tests. Apparently the child could hear *a* and *o* at a distance of about one foot, but she could not distinguish between the letters. That child had been trained, and had reached her second year of oral work. As soon as the child had learned to correlate the relations of the spoken word to the idea or sentiment which the idea expressed, he began his education—not re-education, for she had never had any education before. She could not carry on conversation in sentences which embrace a vocabulary of about four hundred words. He cited another case of a little girl who lost her hearing from scarlet fever, also, of course, losing her speech. She was now seven years old, and following a recent attack of measles, had regained her speech and hearing. This was probably due to some stimulation to the auditory nerves furnished by the measles. He emphasized the importance of the trained otologist carrying on this work in connection with the trained, paid teacher.

Dr. Robert Clyde Lynch, New Orleans, La., had made no attempt at re-education, his experience being limited to the use of the Meyer-Rowan instrument, in a practical way, in his office, during the past three years. He had been pessimistic ever since the instrument was first brought into his office, and was frank to say that he was still uncertain. He had used it in two or three hundred cases, and had accomplished results which could not have been obtained with the ordinary Politzer bag pneumomassage. He had used it in some cases in which he failed to note improvement. According to the statements of the patients, bells and other sounds could be heard which they had not been able to hear before. Oto-sclerosis patients had not improved at all during three years of treatment, there being no appreciable increase or decrease of the deafness. Two of these patients had been through typhoid fever, one through low-grade malaria, with the chronic use of quinine (small doses over a long period), without

any increase in the deafness. Some had been benefited by out-of-doors exercise. The vibrations with this instrument were passed through the Eustachian tube. The catheter was placed in the Eustachian tube so that the vibrations of air would be transmitted direct to the middle ear and membran secundaria. This sonorous tone can then be heard in a diagnostic tube. Only one vibrating drum should be used at the time. If two or three vibrations were used at the same time there would be a confusion of tones, with no resulting good. The vibrations were used through the tube for from one-half to one minute, another tone then being used for the same length of time. He had his patients come from these treatments twice a week for at least six weeks. If there was any reason, in an increase of hearing, for the continuance of the treatment, they should come for a longer time.

He had derived a great deal of pleasure out of the instrument because of the relief of tinnitus which it had afforded to many patients, some of whom avowed their willingness to be deaf if only the "noises" could be stopped. In many cases the tinnitus had stopped, or had become modified in tone or degree of intensity, the patients remaining in that condition. In some cases there was no change whatever. He did not use the to-and-fro air massage, as he believed that the vibration of the air and tone massage bear no relation to each other, except that they come from the same source. The number of vibrations producing the tone must bear a definite relation to the air starting the vibrations, and in that way they must be synchronous. If he began to note improvement in hearing in cases of supposed otosclerosis, he began to doubt his diagnosis. In cases of the catarrhal type, improvement was noted in a shorter time, with greater comfort to the patient, and the ear returned more nearly to its normal state than in other plans of treatment. The use of the instrument undoubtedly increased the patulousness of the Eustachian tube more than the use of the catheter in the ordinary way. He considered the apparatus purely a massage apparatus, having none of the principal tone variation required for re-education.

Dr. E. B. Dench, New York City, was glad to see an otologist of Dr. Harris' standing and as careful as he is, take up this matter of auditory re-education. He was familiar with the three types of instruments. The first Zünd-Bourget apparatus brought into this country was imported by a patient of his, who derived absolutely no benefit from its use. He had not used the Marage apparatus, but Lake, of London, advocated it. One of the Meyer-Rowan instruments had been tried in his clinic, with no results whatever. The firm that handled the apparatus was so convinced that it was of no use that they removed it. Undoubtedly instruments of the character of those under discussion, improperly used, could increase tinnitus.

Dr. George L. Richards, Fall River, Mass., had read Dr. Hubby's papers, and had had the instrument tried out on himself. He had asked Dr. Hubby if he was still of the opinion expressed in the two papers, to which a negative reply was given. The speaker had one of the first Meyer-Rowan instruments. Some of his patients thought they were improved by it, but he thought it largely a psychological matter. He had tried an apparatus put out by the Victor people, but without results. He was of the opinion that Dr. Miller and Dr. Goldstein were on the right line. He

emphasized strongly the importance of beginning early to teach these patients lip-reading.

DR. HARRIS, in closing the discussion, said his thought in bringing the subject before the Society, was to try to stimulate interest in the matter of auditory re-education. He thought he had made it plain that he was not advocating any special instrument. He was thoroughly convinced that there was a good deal in the physiology of this matter. His patients had been very carefully tested, not by subjective tests. He had had considerable improvement in cases of otosclerosis, the patient would have a cold, and the hearing would be worse. With the Zünd-Bourget instrument the requirement was that the treatments should be given twice a day, which was manifestly impossible. The human voice was ideal, but its use was impracticable, consequently some mechanical apparatus should take its place.

Final Report on the Isolation and Cultivation of the Tubercle Bacillus from the Discharging Ear in Cases of Chronic Purulent Otitis Media. DR. GERHARD HUTCHINSON COCKS and DR. JAMES GARFIELD DWYER, New York City.

DR. GERHARD HUTCHINSON COCKS and DR. JAMES GARFIELD DWYER, New York City, presented this report. Tuberculosis may effect the ear primarily or secondarily, according to their findings. Secondary aural tuberculosis may complicate pulmonary tubercle, or may result from tuberculosis of the glands, intestines, bones, etc. The acute form of tubercular otitis is characterized clinically by its rapid onset; the occurrence of multiple small perforations which quickly coalesce, forming a large defect; the rapid formation of granulations; early periotic glandular involvement; and the early appearance of facial paralysis. The chronic type is painless in its onset, protracted in course, and resistant to treatment. Extensive destruction of bone, often leading to facial paralysis, is extremely characteristic of this disease. Rarely, tubercles appearing as yellowish spots may be seen through the semi-transparent tympanic membrane.

The earlier methods employed to identify aural tuberculosis are stated, and the method reported by the writers in January, 1915, for isolating and cultivating the tubercle bacillus from discharging ears and mastoid wounds, is given in detail. This method was based upon the use of antiformin, which destroys all the common pyogenic organisms except the acid-fast group. It is assumed, from their investigations, that the cultural method is a reliable, accurate, and fairly rapid method of diagnosticating aural tuberculosis, and one which should prove of considerable value in the further study of this important subject.

Galvanic Test of the Internal Ear. DR. GEORGE W. MACKENZIE, Philadelphia, Pa.

DR. GEORGE W. MACKENZIE, Philadelphia, Pa., in this communication, holds that of the three known methods of testing the functions of the non-acoustic inner ear—the caloric, the rotational and the galvanic—the first two are applicable to the semi-circular canals only, while the last-named is applicable not only to the canals, but also to the cochlea. There is but one method of testing the eighth nerve, viz., the galvanic. The

galvanic, therefore, has a wider scope of application than either of the other two methods, or than both combined.

During the eight years which have elapsed since the writer published the results of his investigations with the galvanic method, this method has been employed whenever an examination called for a test of semi-circular canal function. It has been tried repeatedly when the patient was too sensitive to submit to the caloric or to the rotational tests.

After pointing out certain limitations and inaccuracies of the caloric and rotational tests, Dr. Mackenzie considers the galvanic test from the standpoint of accuracy. In making this test, certain essentials are required: (1) a suitable electrical apparatus with clean contact points; (2) even more important is an accurate milliamperemeter; (3) a reversing switch under the control of (4) a capable assistant who controls polarity, the amount of current, and observes the milliamperemeter; (5) two electrodes, one about two inches square and flat, and the other a small ball electrode (about a quarter of an inch in diameter or smaller). Both electrodes should be wrapped snugly in moist cotton or gauze. The details of making the tests are given in the paper, and the reactions described.

Among the cases examined and recorded are normals; deaf mutes; one-sided labyrinth destruction; acute and latent labyrinth suppuration; old cases of plastic labyrinthitis, unilateral and bilateral; recent as well as old cases of meningitis, some with complete and other with partial loss of function; hemorrhage into the labyrinth; fistulas of the labyrinth; internal auditory canal tumors; herpes zoster; multiple neuritis of the cranial nerves; early and late syphilis of internal ear and nerve skull fractures; gunshot wound of the ear; cases with middle ear catarrh; others with middle ear suppuration, with hyperemia of the labyrinth.

From these observations it is concluded:

(1) That the galvanic test is more accurate than the caloric or rotational tests in determining the function of the semi-circular canals.

(2) That, besides being more accurate, the galvanic test is the least annoying to the patient, the most sensitive and the easiest to control, of the labyrinthine tests.

(3) That the galvanic test can be applied as a unilateral test of the semi-circular canal function in all sorts of pathological conditions.

(4) That the galvanic test is applicable to cases of suspected unilateral labyrinth suppuration with obstruction in the external canal where the caloric may fail.

(5) That the galvanic test is a unilateral quantitative test of semi-circular canal function, which is a distinct advantage over the rotational test, the latter being, at best, a bilateral test.

(6) That the galvanic test is the only one possessed for testing the function of the eighth nerve in cases of neuritis or in cases of secondary degeneration following destruction of the inner ear.

(7) That the galvanic test is the only one whereby one can make a differential diagnosis between labyrinth destruction, pure and simple, and eighth nerve neuritis.

(8) That the galvanic test is the only test available for determining the progress of eighth nerve neuritis whether favorable or unfavorable.

DISCUSSION.

DR. E. B. DENCH, New York City, used the galvanic test as a routine method of examination in all cases where there was a possibility of either an intracranial or a labyrinthine lesion. He had used it in the early years of his practice, and the literature of the subject was covered in his book. He had found from six to eight milliamperes as much as a patient could stand. The labyrinth which reacted to four milliamperes, as described by Dr. Mackenzie, was pretty close to a hyperesthetic labyrinth.

DR. MACKENZIE, in closing the discussion, emphasized that the nerve is reactive for some time after the labyrinth is destroyed, or until secondary degeneration occurs in the nerve. The Galvanic test was particularly of value in the differentiation of labyrinthine from eighth nerve lesions. In the cases of pathologic irritation of the labyrinth, a condition that always preceded a destructive lesion, the Galvanic test afforded an accurate method of determining the fact, and put one on guard, so to speak. In the care of pathologic irritative lesion, the patient had a nystagmus or a tendency to nystagmus to the affected side. The Galvanic test with the kathode to the affected side would develop a positive reaction with the slightest current. The more pronounced the irritation, naturally the less intensity of current was required. These facts he had brought out quite strongly in the paper. He was afraid Dr. Friessner did not understand the points which he had tried to bring out in the paper, for in his discussion he practically corroborated or emphasized the speaker's own arguments for the alvanic reaction, especially so where he (Dr. Friessner) mentioned the case with the destroyed labyrinth and the reactive nerve. A case with large polyps which hindered one in making the caloric test gave especial indication for the use of the Galvanic method. He recalled instances where cold water, used in excessive amounts to produce a reaction, had failed, and the Galvanic test had given clear findings, and without any distress to the patient.

In experimental work with deafmutes and in everyday private practice, he had no difficulty in getting children to submit to the examination a second and third time when they refused a second examination by turning or with cold water.

One important essential was the technic, which included a suitable apparatus, with accurate milliamperemeter, and proper electrode well soaked in water.

Concerning the reaction obtained by Dr. Dench, it was not uncommon for one in his earlier experience to first notice a reaction with six milliamperes, but the larger one's experience and the more carefully the technic was carried out, the less current was required before the reaction was noted.

He regretted that time did not permit him to answer all the questions raised in the discussion.

The Disease and Surgery of the Trifacial Nerve. DR. JOHN F. BARNHILL, Indianapolis, Ind.

(Published in the December, 1916, issue of THE LARYNGOSCOPE.*)*

DISCUSSION.

DR. WILLIAM H. HASKIN, New York City, had never seen a case of neuralgia in which a cause could not be found if looked for with sufficient

care, and if one knew for what to look. Medical men generally had little knowledge of the jaws and of the teeth, and of the affections which concern them. Only those who had made more or less of a fad of this sort of thing realized what a variety of conditions involve the teeth and jaws. He did not rely on the x-ray entirely. In some of the worst cases of systemic infections which he had ever seen nothing was revealed by the x-ray to suggest that the teeth were concerned in the condition. By tapping on each tooth with a metal instrument or by other means a tooth could often be found which was less sound or firm in its socket than it should be, impaction could be discovered, or perhaps supernumerary teeth could be located.

It was a significant fact that the four system of ganglia concerned—the ciliary, the spheno-palatine, the gasserian, and the otic—belonged to the posterior spinal group. Another significant point was that the ganglion of Ribes is the only single ganglion of the upper sympathetic ganglion system. Whether that had anything to do with the sympathetic eye conditions he did not know. He had a collection of 250 skulls, and he had never seen a skull in which the vidian canal, the spheno-palatine ganglion, and the foramen rotundum were so situated that one could make an injection into them. He did not believe it possible to inject the ganglion through the nose.

He had found a condition in the sphenoid sinus in some of the skulls examined which might account for pains—that is, a stalactite type of bone, with probably fifteen or twenty spicules of bone projecting into the sinus. The deeper structures of the bone were nearly always involved. Sluder had claimed that he had found this condition without any pain. The bone was always very thin, and such a condition of the bone in the floor of the sinus was very apt to affect the sympathetic nerve as it passed through the vidian canal. The nutrition of the nerve itself was disturbed. This suggested an interesting paper by Lernier, of Lyons, in 1900, in which were reported 28 long-standing and intractable cases involving the lower limbs and abdomen and the face. Seven of these facial cases were absolutely relieved of pain, and others were greatly benefited, by the removal of the superior cervical sympathetic ganglion. The cure did not take place immediately after the removal, but pain continued two or three weeks, depending upon the loss of nutrition.

Many of these neuralgic cases were infectious conditions, in the speaker's opinion, and if energy were directed to the discovery of the infective foci there would be no need for evulsion operations. The infection very frequently arose from an intestinal toxemia, from malaria, syphilis, or any anemic condition.

Dr. Joseph C. Beck, Chicago, Ill., said his experience was in keeping with that of Dr. Haskin. He also thought the ear was a causal factor in a good many cases. From a medico-legal point of view the effect upon the eye of injections into the ganglion must be considered. The effect upon the cornea was especially to be thought of, for it must be remembered that there had been a number of cases reported of absolute destruction of the cornea, either from secondary infection or from trophic changes.

With regard to the last-resort gasserian ganglion operation, he was inclined to think that injection through the foramen ovale would give as good results as the tremendous operation advocated by Cushing. He

agreed with what Cushing had said at the Chicago meeting of the Clinical Congress several years ago.

The trouble was, in these cases of nerve resection, that the nerve had a tendency to jump. Murphy had endeavored to prevent this by the implantation of some substance, such as cargile membrane, which the nerve could not penetrate.

He had had perhaps 250 cases in which he had injected through the spheno-palatine formen, in some of which no relief had been obtained, while in others the method had been successful. He asked the essayist what was meant by the spheno-palatine fissure. The nerve could be reached much further back than by going through the orbital foramen. He followed the Treves method at the infra-dental foramen.

In many of these cases if one referred the patient to a dentist the patient would be referred back again with the report that nothing was the matter with the teeth. However, after the exclusion of the teeth and all other causes, in some cases pain would persist. In these cases he was inclined to believe it was "in the mind."

DR. E. M. HOLMES, Boston, Mass., following up Dr. Haskin's remarks, recalled a number of cases in which all the teeth had been removed and yet the tic douloureux persisted. He could not say that there were no cicatrices. He had had cases in which he injected ten or more times, through the infra-dental foramen, giving relief with the alcohol-carbolic solution. He had not been able to find the cause of the trouble in these cases. Patients were relieved, sometimes for weeks, months, or years, by injection in or about the ganglion. It was well to try this method after all others have failed, even when the syndrome was not that of Meckel's ganglion involvement.

DR. LEWIS A. COFFIN, New York City, had had little experience with the surgery of the tri-facial nerve, but he recalled two cases showing involvement of that nerve which had come under his care. One was a young woman, referred to him by an ophthalmologist for examination of the sinuses, which he thought might be the cause of her supraorbital pain of the right side. No sinus trouble was found. She had a considerable deviation of the septum, high up, but after a thorough sub-mucous resection, she still had the pain. The adenoids were then exenterated, which in no way affected the pain; but during the handling of the case he noted that the periodicity of the attacks was quite regular. The blood was not examined, but the patient was put on a vigorous anti-malarial treatment. Improvement was prompt. The case was still under treatment, but was practically well.

The other case was that of a woman of about 45 years of age who consulted him on account of neuralgic pain about the left cheek, radiating to the ear. The patient was sure the pain came from the ear, as she was hypersensitive to all unusual or sharp noises. Treatment of the ear and anti-neuralgic treatment gave but temporary relief. The speaker was about to inject alcohol into the tri-facial when, upon examination of the urine, it appeared that there was an extremely decided reaction to tests for indican. Frequent doses of castor oil and compound licorice powder were given. Lavage of the bowel was done daily for ten days. At the end of that time both the neuralgic pain and the hypersensitiveness to noise were entirely relieved.

DR. HARRIS P. MOSHER, Boston, Mass., had found, from work on the cadaver, that the ideal approach to the second division of the fifth nerve was through the canine fossa. He was surprised that the essayist should go underneath the eye to reach the nerve. A number of years ago he reported a series of specimens of exostoses in the frontal and sphenoidal sinuses. He had never found more than three or four of these growing from the sphenoid, and never of sufficient size to interfere with the vidian nerve.

DR. BARNHILL, in closing the discussion, was surprised to hear Dr. Haskin say he had had no case without a discoverable cause. That had not been the experience of others. He had had cases in which the teeth were extracted, the sinuses opened, castor oil, etc., administered, and various other measures resorted to, without revealing the cause or relieving the condition, and yet he did not think the disease was mental, as had been suggested. Many of the things mentioned in the discussion were included in his paper, but not read. There were many cases, nevertheless, in which the patient would go from neurologist to dentist, from dentist to otologist, and back again, without relief from this pain, which some have declared to be so severe that they would rather die than continue with it. He had tried Dr. Mosher's method of going up through the antrum, but had not found it as satisfactory as the method which he advocated. With the same care that was exercised in other operations, the scarring would amount to nothing. Destruction of the gasserian ganglion had been tried on dogs and other animals, and it had been found very difficult of accomplishment. It could not be destroyed by injections of alcohol. The ganglion was tucked up under the dura mater, and was very difficult to reach. He reiterated that he was not discussing the class of cases which could be relieved by the various measures mentioned in the discussion, but those in which all these measures had failed to give relief. In such cases he suggested resection of the gasserian ganglion.

Ruptured Aneurysm into the Mediastinum and Deep Cervical Fascia with Symptoms of Ludwig's Angina. Report of Three Cases. DR. EDGAR M. HOLMES, Boston, Mass.

(Published in the October, 1916, issue of THE LARYNGOSCOPE.*)*

DISCUSSION.

DR. L. W. DEAN, Iowa City, Iowa, in opening the discussion, said: "I am sure that every one of us that has heard this very interesting report is struck by the fact that three such similar and rare cases should occur in the service of one man, however large the service may be.

"When one comes to investigate the literature of aneurysm with rupture in the mediastinum, or in the deeper fascia of the neck, one is still more impressed because of the rarity of the material on this subject.

"Osler,[1] the world authority on aneurysm, in his System of Medicine, simply states that the aneurysm may rupture in the anterior-posterior mediastinum or in the muscles of the neck. In his article on aneurysm in Allbutt's System of Medicine[2] he makes a statement that rupture in the mediastinum tissues is common. He mentions rupture into the mediastinum in both articles, but in neither does he describe the invasion of the tissues of the neck, and one gets the impression that such ruptures with invasion of the neck are not common.

"So far as I am able to ascertain, the first history of a case of aneurysm of the aorta bursting into the muscles of the neck was one reported by Lazarus Barlow[3] in the Transactions of the Pathological Society of London, in 1892. He reported a patient that suffered from difficult breathing and restlessness for several days, then finally had the sudden swelling in the neck and died choking. In this case the autopsy showed on each side of the neck among the superficial muscles a large collection of blood clot which extended behind the pharynx and compressed the esophagus. The blood had tracked up from a rupture of a saccular aneurysm of the thoracic aorta. In the report the author stated that careful search of the literature failed to reveal a similar case.

"Dr. Percy Kidd,[4] in the *British Medical Journal*, reported a case of rupture of an aneurysm of the aorta into the posterior mediastinum with compression of the esophagus and vagus nerves, which resulted in vomiting and a troublesome cough. In this case there was no swelling of the neck, the blood burrowing down into the abdominal cavity. His contention was that the vomiting was the result of compression on the vagus nerve.

"The cases as reported by Dr. Holmes, in which there was no vomiting of any moment, would suggest that the vomiting was due in Dr. Kidd's case to the hemorrhage in the abdomen rather than to compression of the vagus nerve as suggested by Dr. Kidd.

"A most interesting case of rupture of a false aneurysm of the internal carotid is reported by George Heaton,[5] in the *Birmingham Medical Review* for 1891. This case was possibly more suggestive of cervical cellulitis in the early stages.

Ten days before the patient was seen he had an attack of quinsy. Two of his sisters in the house were at the same time ill with bad throats. Three days before admission he had a profuse bleeding from his mouth and nose. There were several similar attacks. On the day before his admission some swelling was noticed in his left carotid region, which was supposed to have been an infected gland. At the time of the rupture of the carotid the patient had a mild degree of cervical adenitis. The next day the patient had a very strong pulse with a slight hemorrhage from the left ear and the nostrils. There was an ill-defined swelling on the left side of the face and neck. The left ear was pushed outwards by the swelling and the anterior meatus bulged into its cavity. The skin over the swelling was inflamed and the whole swelling pulsating synchronously with the heart beat; the left tonsil was pushed beyond the mid line; the soft palate bulging on the left side. No bruit or thrill could be detected. In about four days the patient died. Post-mortem examination showed that the patient, during the attack of tonsillitis, had developed an abscess in the neighborhood of the internal carotid artery which had eroded the wall of the artery, resulting in the production of a false aneurysm which had eventually burst."

1. Osler.—System of Medicine, Vol. IV.
2. Allbutt.—System of Medicine, Vol. VI.
3. Lazarus Barlow.—Trans. Path. Soc. of London, Vol. XLII, p. 38.
4. Brit. Med. Jour., 1886, p. 979.
5. Heaton, George.—Birmingham Med. Rev., 1891, Vol. 30, p. 304.

DR. HOLMES, in closing the discussion, added that there was no autopsy on the first case. The general surgeon who saw the man about a week

before his death, thought, from the great distress about the upper chest, that there was a tumor formation and not an aneurysm. In the second case there was an autopsy, with a good report from the pathologist. Anyone seeing the patient would have thought he was dying from general sepsis. He had a slight pulsation, but not more than would come from swollen tissue. In the last case he made a blunder in diagnosis. The patient had so many of the appearances of acute septic cellulitis that it was easy to make a mistake in diagnosis.

The Vaso-Motor and Secreto-Motor Nerve Mechanism of the Nasal Chambers. A Consideration of the Anatomy and Physiology of the Olfactor Nerve. DR. ALBERT F. BRUBAKER, Philadelphia, Pa.

DR. ALBERT F. BRUBAKER, Philadelphia, presented this paper by invitation. The subject is discussed from the viewpoint of finding a physiologic basis, if possible, for the interpretation of the nasal phenomena that present themselves in various forms of rhinitis, a knowledge of the secreto-motor and vaso-motor mechanisms that excite and regulate the secretory discharge and the vascular supply of this region, and the manner in which they in turn are excited not only to normal but to abnormal activity.

Though living, and therefore possessing the fundamental property of all living material, namely, irritability, the epithelium lining the secretory glands contained in the mucous membrane lining the nasal chambers, as well as the muscle cells entering into the formation of the walls of the arterioles, are lacking in spontaneity of action, and therefore require for the manifestation of their activities the stimulating influence of nerve impulses originating in special groups of nerve cells, and transmitted from the central nervous system by specialized groups of nerve fibers. The nerves distributed to these two structures belong to what is termed at the present time the autonomic system and hence consist of two consecutively arranged neurons, one termed post-ganglionic, the other preganglionic.

The post-ganglionic fibers that directly excite to activity the epithelium of the glands and the muscle fibers of the blood vessels have their origin in the nerve cells which constitute the spheno-palatine or Meckel's ganglion, situated in the spheno-maxillary fossa. From this origin the nerve fibers pass in different directions to become ultimately related, histologically and physiologically, with the epithelium of the glands and the muscle fibers of the blood vessels, not only of the nasal chambers, but of the roof of the mouth, palate and upper portion of the pharynx as well. The stimuli that call for the activities of these peripheral structures are nerve impulses discharged by the ganglion cells and transmitted to them by the cell process and their branches. The ganglion cells, however, though irritable, are also devoid of spontaneity of action, and require for their excitation the arrival of nerve impulses, discharged by the nerve cells in the central nervous system, and transmitted by the preganglionic fibers.

The pre-ganglionic fibers have their origin in groups of nerve cells situated in the gray matter beneath the floor of the fourth ventricle. From this origin the nerve fibers pass forward and outward, and emerge from the side of the medulla, in a small bundle, between the facial and

acoustic nerves, known as the pars intermedia or nerve of Wrisberg, of which they constitute a part. Just after these nerves, in their forward course, enter the internal auditory canal, the nerve of Wrisberg enters the sheath of the facial, having but a short independent course. At the point where the facial nerve turns backward to enter the aqueduct of Fallopius, some of the fibers in the nerve of Wrisberg leave the facial and pass forward to the spheno-palatine ganglion, around the cells of which the terminal branches of the nerves arborize, thus forming histological and physiological connections with them. These fibers form the great petrossal nerve. Nerve impulses discharged by the central cells, situated in the ventricular gray, are transmitted by the nerve fibers of the nerve of Wrisberg and their continuations, to the cells of the spheno-palatine ganglion, which is then aroused to action. These, in turn, discharge impulses which, owing to the extraordinary branchings of their processes, would be distributed in a spray-like manner to the myriads of epithelial cells lining the glands and to the myriads of muscle cells found in the walls of the arterioles.

The blood vessels of this region are regulated in the degree of their contraction partly by the vaso-constrictor nerves. The pathway for the transmission of nerve impulses from the vaso-constrictor center to the blood vessels has been shown by experiment, and is described in the paper. The blood supply is under the control of two antagonistic groups of nerve centers and nerves, a dilator and a constrictor.

The central mechanism for the innervation of the nasal chambers is thus shown to consist of groups of nerve cells having secreto-motor, vaso-dilator or inhibitor, and vaso-constrictor, or augmentor, functions. Granting that they possess a certain degree of tonicity or tonus, these different groups may be excited to activity or inhibited by: (1) The arrival of nerve impulses transmitted from the mucous surfaces of the nasal chambers by the nasal and other branches of the trigeminal nerve, and from the skin by the cutaneous nerves (reflex or peripheral in origin). (2) The arrival of nerve impulses descending from the cerebrum in consequence of psychic states of an affective or emotional character (direct or cerebral in origin). These are discussed in full by the writer.

These facts taken collectively show that the physiologic conditions of the nasal chambers require for their maintenance a complex nerve mechanism; a mechanism which, however, may be easily impaired and rendered unstable by internal causes, whereupon it acts in an abnormal manner and thus lays the foundation for the development of pathologic states of longer or shorter duration.

A Contribution to the Bacteriology of the So-called Cocco-Bacillus Fetidus Ozena (Perez), with Additional Notes on the Treatment of Clinical Ozena by Means of Polyvalent Vaccins Made from the Same Organisms. DR. HENRY HORN, San Francisco, Cal.

This contribution represents work conducted by Dr. Horn and Dr. Ernst A. Victors, and follows a preliminary report previously presented. The belief is expressed that the contention of Perez, made thirteen years ago, that the cocco-bacillus fetidus ozena is the true and only cause of ozena, has not been successfully controverted. The bacteriologic work presented consisted in the more exact study of the morphologic characteristics of

this organism; and an endeavor to correlate it with the bacillus bronchisepticus. Its assumed close relationship to the Friedlander group seemed to be fully settled in the negative by this work. It is believed that it has absolutely nothing to do morphologically with the bacillus of Abel or other members of the Friedlander family. The existence side by side of these two organisms in the nose is not questioned. A typical Perez bacillus and the typical bacillus of Abel and Löwenberg may be observed on the same slide. It has often been observed that as the case improves clinically the Friedlander group takes the place of the Perez bacillus and seems to be the last to clear up.

Case histories and animal experiments are detailed, and findings presented in tabulated form. Seventy-one cases were studied. In fifteen cases of simple trophic rhinitis neither the Perez bacillus nor the bacillus of Abel was once found, showing that these two organisms are not present in this type of case, nor are crusts and odor usually present. It is also shown that the bacillus is never found in the normal nose,—a point also confirmed in a large series of routine laboratory examinations. Although the Abel type is never present, other members of the Friedlander group are frequently found in accessory sinus and other infections. In forty cases the diagnosis was made of clinical ozena. In twenty-eight of these cases the Perez organism was shown to be present, or in 58 per cent. A most important fact is that in the remaining 42 per cent of cases only the Abel bacillus or members of the Friedlander group were found. In other words, in every case where a clinical diagnosis of ozena was made, one or the other of these two groups could be demonstrated as the predominating organisms.

DISCUSSION.

Dr. Thomas J. Harris, New York City, had used the vaccine furnished by Dr. Dwyer in about half a dozen cases, trying it very faithfully, but had failed to get results.

Dr. J. A. Stuckey, Lexington, Ky., had used some of the vaccine received from Dr. Horn, six weeks before, in four cases of ozena—not atrophic rhinitis—and in all of them had gotten good results, in two cases after the second injection, and in two after the fourth injection. How long these results would last he could not tell. He was still using the vaccine. Two of these patients had traveled all over the country seeking relief. There was now no odor at all, and the crusts were much softer and diminished greatly.

Dr. George L. Richards, Fall River, Mass., had used Dr. Horn's vaccine in one case, of long standing, with thick, nasty crusts in the nose and naso-pharynx. After four or five injections the crusts had diminished, and the patient expressed himself as being improved. No washing was allowed in the nose, and heavy hawking was forbidden. Experiments should be continued with any kind of vaccine which offered hope of making the lives of these patients more comfortable.

Dr. Robert Clyde Lynch, New Orleans, La., had been using for two months the Parke-Davis vaccine of the Perez organism in thirty cases. Following the second injection there had been marked diminution in the odor, but this did not continue. After some period of this treatment some of the patients developed a hemorrhagic condition of the nasal mucosa, bleeding following the slightest disturbance of the crusts. This

had become a decided factor in efforts to relieve these patients, and one with which he had not had to deal before using the vaccine. In no case had the scabs ceased forming, nor had the mucous membrane changed in its character. They followed the usual reaction after the first injections in some cases. It was possible to demonstrate an organism said to be that of Perez in all cases, though since hearing Dr. Horn he was quite sure there had been a mistake in bacteriological findings. Syphilis was excluded by Wassermann and lack of history and clinical manifestations. He used from 500,000,000 to 3,000,000,000 as dosage, and repeated every two to five days. Results had not been satisfactory.

DR. CLAUDE E. COOPER, Denver, Colo., had been studying a series of thirty-four cases, in only one of which was found the Perez bacillus or bacillus bronchiseptious. The organism was found under the periosteum. In a limited experience he had had no success with vaccine treatment in these cases.

Some Observations on the Treatment of Hay Fever, with Report of Twenty-four Cases Treated with Pollen Solutions and Twenty-two Cases Treated by the Administration of Calcium Chloride. DR. HAROLD WILSON, Detroit, Mich.

(*Published in the June, 1916, issue of* THE LARYNGOSCOPE.)

DISCUSSION.

DR. SEYMOUR OPPENHEIMER AND DR. MARK J. GOTTLIEB, New York, City, in opening the discussion, said: "It is impossible with the time allotted to give this most complete paper its necessary criticism. Dr. Wilson has carefully covered the ground appertaining to the collection of pollen and the preparation of the extracts. We entirely agree with Dr. Wilson that grinding the pollen with moist sand and then macerating the mixture with aqueous solutions, and more particularly from our experience, with distilled water, the strongest antigens are obtained. We know that calcium salts have some relation to the pre-anaphylactic and anaphylactic state, and it has been the observation of many investigators, as Dr. Wilson has cited, that in some instances calcium salts prevent or diminish the intensity of the symptoms which occur upon exhibition of the substance or substances to which the individual is sensitive. On the other hand, treatment with calcium salts has not been successful in the majority of cases. Probably a combination of desensitizating methods and the administration of calcium salts will solve the problem in the cure of protein sensitizations. It is not surprising that the results obtained by Dr. Wilson from the treatment with pollen extracts have not been more satisfactory. As he himself has stated, possibly there were other pollens beside ragweed which caused the symptoms in his patients. That is only too true, as the majority of cases are anaphylactic to more than one pollen, especially of the same genus but not necessarily of the same family. In the summer and fall there are four important plants whose pollen fly in the air in such abundance that it is not surprising that there should be a multi-sensitization. These are: plantago lanceolata, which begins to bloom about the middle of July; ambrosia, which begins to bloom in the beginning or middle of August; wild astor, which begins to bloom in the early or middle part of September; and last, but

not least, Indian corn, which blooms about the middle of July. Only the ambrosia and aster are of the genus compositæ; Indian corn is of the gramanesea. Certainly these are not corelated groups, and still we have found patients susceptible to one or all of these.

"Through the kindness of Dr. Wilson, we have been able, at our leisure, to study his manuscript carefully. We find that five of the cases which he treated with calcium chlorid did not react to ragweed. Of these five cases, four had none or insignificant symptoms. Ragweed was the only pollen with which they were treated, and it is fair to assume that possibly they may not have had hay-fever at all, and the result obtained may be due to conditions which we know nothing about. On the other hand, Dr. Wilson claims that it makes no difference whether the case be one of pollenosis, urticaria, eczema, asthma, or any other manifestation of anaphylaxis, as long as it is a case of sensitization the indications are clear that calcium salts should be exhibited no matter what the *causus operandi* may be.

"The individual and the season are important factors in the consideration of the intensity of the symptoms. The season may be mild or late, early or severe. The patient may be in good or impaired health. We have seen patients who in other seasons have had severe hay-fever, while in a season in which other patients suffered immensely, they suffered but little.

"Our results last year were as follows: Of 32 spring cases, 30 had no symptoms. Of 62 fall cases, 52 were treated before their attacks; 15 of these had no symptoms; of the twelve who were treated just before or during the attack, four were markedly benefited.

"At present the treatment of pollenosis and other anaphylaxes is in its evolutional stage. There will gradually be a perfection of our understanding of this complex group of conditions. With properly organized and conducted laboratory research we shall, in time, evolve something which will take its place with diphtheria antitoxin as a powerful asset in our therapeutic armamentarium. To this end we have been working for the past three years.

"This year as a result of elaborate experiments we have produced a serum-pollen extract with which we hope to increase our successes in the treatment of this troublesome malady."

Dr. George Morrison Coates, Philadelphia, Pa., said: "I have heard with great pleasure this paper of Dr. Wilson's, and Dr. Oppenheimer's discussion of it. We must recognize Dr. Oppenheimer as a master in this work from the reports he gave us last year. I think that we may all agree now that pollenosis is an anaphylactic condition against which the patient can in some cases be immunized. Babcock attempts to show that the analagous condition of so-called idiopathic asthma is also a sensitization of the body cells to one or more of a good many different forms of protein substances, and recommends, first, the tracing of the source of the infection, whether it be an animal emanation, shell fish, fruits, meats, milk, bacterial products, or what not; second, the eradication of the source of the focus of infection; and third, immunization with the proper vaccine when the condition is due to bacterial infection. Now, as this condition is surely closely akin to pollenosis, I believe that in our enthusiasm over so-called vaccine or desensitizing

treatment, we must not overlook the fact that nasal abnormalities and infections must be corrected to obtain the best results. We have all of us had hay-fever cases on whom we have done submucous operations, tonsillectomies, or sinus operations, and who never thereafter had their hay-fever attacks, just as the same thing has happened in idiopathic asthma. Therefore, I would urge that we do not neglect the old tried method entirely in favor of the new and more promising ones.

"We have always understood that nasal abnormalities are one of three factors necessary for the production of the syndrome which we call hay-fever, and certainly in those obscure cases due to animal emanations, as they certainly cannot be called pollenosis, so also they cannot be treated with pollen solutions. The great difficulty with the general practitioner in rhinology as opposed to the hay-fever specialist is the almost impossibility of getting fresh pollen solutions for his work, both diagnostic and curative.

"The skin reaction, to my mind, is one of the most interesting and important features of this work. But we are told that whatever our opinion may be about the value of mixed bacterins, that the administration of mixed pollens is unwise and even harmful in that the patient may be thus sensitized to a pollen that he was not sensitive to before; this, of course, without first applying the diagnostic tests. Therefore, I presume, the mixed commercial solutions in the market should be tabooed. If the pollen solution can be marketed so as to be readily accessible for the use of our patients, it would be a great boon to many patients and many physicians, since we cannot send all our patients to Dr. Wilson and Dr. Oppenheimer, who, all honor to them, make their own pollen solutions. Other patients, of course, cannot afford the time or the money to go to another city to undertake a cure of this sort, which takes weeks to produce satisfactory immunization. This work is so valuable that it should be followed up quickly and some arrangement arrived at by which fresh pollen solutions for diagnosis and treatment can be readily shipped to physicians at a distance for the treatment of their hay-fever patients.

"Dr. Wilson's suggestion that many of the failures may be due to multiple sensitization appears to me to have considerable force. In studying his case-reports I notice that he used but two solutions,—goldenrod and ragweed, and in most cases the latter only. May not many of his failures to obtain entirely satisfactory results be due to the fact that his patients were also sensitized to some other pollens? The whole subject is too complicated at present for the average rhinologist to handle. Most of us in the cities cannot collect our own pollen and make our own solutions. Therefore, the report of the author's second series of cases with calcium chlorid is most encouraging, since his results in that are better than in those treated with pollen solutions. Why this should be, I do not pretend to offer any suggestion, for I believe that the eventual solution will be found in the pollen desensitization plus necessary surgery. Dr. Wilson is right in excluding all doubtful cases in making up his statistics. It is only by rigidly adhering to such a rule as this that the truth can be definitely arrived at. And we must remember also that in estimating the amount of improvement obtained we must in these cases be guided largely by the report of the patients and their own esti-

mate of the benefit experienced. My own experience has been limited and I did not prepare my own solutions. My few patients reported, like many of the writers, that they were not cured, but had had about fifty per cent relief. This may have been due to less exposure than usual, a mild season, etc. No severe reactions were observed, and I see no report of such in Dr. Wilson's paper. I would like to ask on what he bases his statement that serious or fatal results may ensue. We know, of course, the danger of anaphylaxis, but is it really a serious matter here?"

DR. B. R. SHURLY, Detroit, Mich., emphasized the importance of testing the patients in order to regulate the dosage very carefully. By determining the dosage from time to time the cases would progress nicely. Of seventeen patients treated by him last summer, the majority were benefited, according to their own statements, which had to be taken in the matter, inasmuch as the patients passed from his observation. He believed, however, that there was a very strong psychic element in the treatment of hay-fever. This should be taken into consideration in studying the affection; at the same time, if patients felt that they were actually benefited by a certain line of treatment, one should be satisfied to carry out treatment along that line. He had tested some of these patients recently and had found immunity lasting a year.

DR. WILSON, in closing the discussion, said that so-called hay-fever or pollenosis was only one aspect of sensitization in general. It was his conviction that owing to the common fact of multiple sensitization, specific pollen desensitization was more academic than practical, since it was ordinarily impossible to cover the specific sensitizations of the individual patient. Inuring calcium, other salts than the chlorid may be used. The carbonate was converted into the chlorid. Calcium lactate was agreeable to take, but more expensive than the chlorid.

Report of a Case of Cyst of the Larynx Operated Under Suspension Laryngoscopy. DR. WILLIAM B. CHAMBERLAIN, Cleveland, O.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

Tubercular Mastoiditis with Sequella; Multiple Operation; Complete Recovery. DR. WILLIAM LEDLIE CULBERT, New York City.

(*Published in the December, 1916, issue of* THE LARYNGOSCOPE.)

The Bacteriology of the Submucosa in Ozena. DR. CLAUDE C. COOPER, Denver, Colo.

This investigation of the bacteriology of the submucosa was suggested by an article by Dr. Jonathan Wright, published in "The Laryngoscope," June, 1913, in which the opinion was expressed that a periostitis of some unknown systemic cause is an etiologic factor in ozena. Two cultures of each case were made: The first from the surface of the mucous membrane, using a loop of the moist secretion around a crust or from under the inferior or middle turbinate, innoculated upon an agar slant. Later, in an effort to isolate the Perez cocco-bacillus, bouillon and a part of the crust was used. The second culture was made from tissue plasma underneath the mucous membrane of the inferior turbinate, as close to the bone as possible. The vestibule and inferior turbinate were cleansed with some weakly antiseptic alkaline solution; the vestibule sponged with

alcohol and the turbinate anesthetized. The anterior end of the turbinate was painted with tincture of iodin and a sterile needle connected with a sterile syringe was introduced through the iodinized area to the bone. The bone was hugged by the needle while several stabs were made along the turbinate underneath the mucous membrane. The blood and plasma were then drawn into the syringe. The amount varied in quantity in different instances, from a few drops to a cubic centimeter or more. The needle and syringe were withdrawn, the needle disconnected from the syringe and the latter's contents dropped into a bouillon culture. The bacteriological findings are given in detail.

From his studies the writer concludes, among other things, that if the disease is due to some unknown systemic cause, the submucosa and periosteum should be sterile or proved to be secondarily invaded. If due to multiple microorganic causes, the seat of the pathologic changes should harbor one or more of the factors at some time during the progress of the disease. This the writer holds to be the most probable, and offered in evidence cultural proof of the existence of inflammation producing germs within the submucosa. The very frequent association of Abel's bacillus with the disease justifies considering it a quite common cause, though not the specific cause. That the Perez cocco-bacillus in view of the work of Hofer, Horn, and others, may be one of the causes and probably is, cannot be denied, but that it is the specific etiologic factor must yet be proved.

Our American Voice and Articulation. DR. CHARLES P. GRAYSON, Philadelphia, Pa.

DR. CHARLES P. GRAYSON, Philadelphia, Pa., draws a contrast, with the desire of making it as strikingly evident as possible that while so much has been done for the education of the deaf and the relief of those suffering from respiratory and phonatory embarrassment, practically nothing has been done of an educational nature for the cultivation of the voice or the refinement of articulation. The writer is not forgetful of the graver forms of "speech defect" that have been studied and treated with such success, but emphasizes the fact that there are many defects of lesser degree, defects that handicap the individual and try the patience of those who must listen to him. These have received but little attention, because, perhaps, the cripple himself has not cared to be cured. This is clearly the work of the oto-laryngologist. Nothing is more clearly recognized than the absolute interdependence of a sound larynx and a sound voice. Opinions may vary, however, within wide limits, as to what constitutes a sound voice. He is not one of those who seem to be content with the almost simple, uncolored fundamental tone as it comes naked from the vocal cords. "Is it too much to hope that some day we may have an American voice that will be clothed with its full complement of overtones, with all the resonance that nature intended it to have, and with a delicacy of modulation that will adapt it to every occasion?" In his opinion this is not Utopian. Vocal instruction should be introduced and made an essential part of the curriculum of every school, public or private; every child should not only be taught to use his voice correctly but should be as rigidly marked for his proficiency or his lack of it as he is for any other of his studies. Nor should this teaching be

limited to the elementary schools. It should be continued with equal insistence in the high schools, the colleges and the university. By vocal instruction he did not mean singing or elocution. The child should be taught the art of ordinary speech. The earlier in life this is taught the more easily it is acquired, and with the gradual growth of the child's vocabulary, it is no less important and no more difficult to teach distinct enunciation than correct pronunciation.

As to the methods for accomplishing the protection "from the offense of slovenly and unintelligible speech," the writer was inclined to believe that more could be accomplished individually than collectively, and that each oto-laryngologist, in his own community, would exert a greater influence in promoting such a cause than could any documentary appeal issuing from the oto-laryngological bodies and addressed to the country at large.

DISCUSSION.

DR. J. W. JERVEY, Greenville, S. C., said: "In the name of Dixie I rise to protest against this wholesale indictment of the American voice. I yield to none in my allegiance to the Stars and Stripes, but just as our old friend Julius Caesar once remarked, that '*Gallia est omnis divisa in partes tres*,' even so must I at this time point out that there are three and several parts of this great country.

"Dr. Grayson speaks for the North. Sorrowfully, and so far, I agree with him. One can often recognize from afar the voice of Yankeedom. The West can speak for itself. I am here to defend the South from a broadcast and heartless attack.

"If Dr. Grayson would hear the music of cherubim and seraphim; if he could hear the lilt of a soft, sweet and soothing intonation, falling upon the listening ear, even as the fragrance of the sweet magnolia falls laden with perfumed delight upon the hungry nostril, I ask him to do that which evidently he has never done—come South. (Walking over to Dr. Grayson) Come South, sir, and hear the song of the South and perhaps a lovely woman murmuring 'I love you.' There we will welcome you, sir, and charm you with our song, even as you would charm us with your coming. Come and dispel these nightmares from your dreams. We await you!" (Applause and laughter.)

DR. GRAYSON, in closing the discussion, replied to Dr. Jervey in like vein. He agreed with Dr. Curtis that instruction in correct voice production and distinct articulation would have but little effect unless the instructor combined example with precept. Dr. Curtis was no doubt perfectly right in saying that the most successful teacher for the American child would be an educated English governess possessing a clear and well modulated voice, but, unfortunately, it would probably be but a fraction of one per cent of the American fathers who could provide their children with governesses of this class. One could readily suggest any number of impossible solutions of this voice and articulation problem, but the one hastily sketched in this paper had at least the advantage of entire practicability. The means for its employment already existed. It only remained to put them into action.

The Relation of Air Pressure in the Nose to Ear Disease. DR. JOHN W. DURKEE, Brooklyn, N. Y.

(*Published in the November, 1916, issue of* THE LARYNGOSCOPE.)

Non-diabetic Acidosis with Special Reference to Post-operative Acidosis in Children. DR. IRA FRANK, Chicago, Ill.

The purpose of this paper is to bring under one head and in concrete form a review of the literature, clinical and experimental, which is fast tending to outline distinctly the hazy concept now called acidosis, adding thereto certain personal observations, and attempting to produce from the whole a practical clinical entitu, with definite etiology, definite diagnostic points, specific treatment and direct and simple prophylaxis. The type of acidosis chiefly considered is the post-operative acidosis of tonsillectomies and adenoidectomies.

That acidosis does occur more frequently following tonsil and adenoid operations is perhaps due to the fact that children are more frequently anesthetized for this purpose than for all other surgical reasons combined. Anesthesia is doubtless the most important causative factor. In addition to anesthesia, another important element possibly accounts for this relatively frequent occurrence of acidosis in children, viz., that chronically infected tonsils and adenoids *per se* may have a more or less important bearing in the production of acid bodies.

The practical points developed by the consideration of the subjects are: (1) Acetone is found in the post-operative urine of practically all children. This acetomuria produces no symptoms in a great majority of cases. (2) Varying degrees of acidosis or symptom-producing acetonemia follows anesthesia in about twenty per cent of cases in children, in individuals predisposed by chronic infections, age, etc. (3) The symptoms of acidosis are such that three degrees of severity are readily apparent, viz.: subacidosis, acidosis, and acid intoxication. (4) Acidosis may be prevented or its degree lessened by a carbohydrate diet, preceding the operation; by shortening as much as possible the starvation preparation; by the use of nitrous oxid, or a short ether anesthesia, and by the use of further carbohydrate diet as soon as the patient is in proper condition following operation. (5) post-operative acidosis in any stage readily responds to solutions of glucose, administered by mouth or per rectum, or in very severe cases intravenously, with sodium bicarbonate as a possibly valuable adjunct.

DISCUSSION.

DR. J. M. INGERSOLL, Cleveland, Ohio, said: "There are many definitions of acidosis and this fact shows that the condition is not yet well defined. Palmer and Henderson say that a condition of acidosis exists when the bicarbonate depletion of the blood has been carried to such an extent that the administration of a quantity of sodium bicarbonate equivalent to one liter or normal one-tenth per cent solution fails to diminish the urinary acidity.

"Normally the blood is slightly alkaline. We know that this is necessary to maintain life and health. During a normal existence an alkaline reserve is stored up in the body fat and muscles and this alkaline reserve is used to neutralize any tendency toward acidity in the blood.

"Volatile acids in the body are eliminated through the lungs by the blood; non-volatile acids are excreted through the kidneys and the sweat glands. An increase of active acidity or hydrogen-iron concentration in the blood stimulates the kidneys and respiratory center at first in the effort to eliminate the acid. If the effort is not successful, we get an

acid intoxication, characterized clinically by rapid pulse, increased acidity of the urine, air hunger, dyspnea, stupor, delirium, vomiting, convulsions and coma.

"Many men are studying the problem of active acidity and we are all learning something about it, the things which cause it and some of the clinical symptoms which develop in acid intoxication. The paper which we have just heard calls our attention to certain definite symptoms of acidosis which may occur in our special work.

"Any condition which interferes with the normal alkaline reserve decreases the patient's resistance to acid intoxication. The debilitating effects of pathological tonsils and adenoid tissue certainly makes the patient more open to attack.

"Prolonged starvation surely predisposes to acidosis but in my judgment the short period of starvation in tonsil and adenoid operations is a very small factor in producing acidosis. The cutting off of liquids, especially water, has been proved to be a predisposing cause and this is probably a more important factor in our work than the short period of starvation. General anesthetics predispose to acidosis. Chloroform does so most markedly, ether in a lesser degree and nitrous oxid gas the least of all. Acidosis is more apt to develop after prolonged anesthesia than it is after a short period of anesthesia. Trauma and the loss of much blood makes the development of acidosis more probable. We have to deal with all these conditions in tonsil and adenoid operations. I agree with Dr. Frank in his statement that acidosis may be prevented, or its degree lessened by the carbohydrate diet before the operation; by shortening as much as possible the starvation preparation; by the use of nitrous oxid gas, followed by a short ether anesthesia. In addition to these, I would emphasize the importance of careful dissection of the tonsils to avoid trauma; dealing with hemorrhage in a plain surgical way and the giving of small quantities of water frequently as soon as possible after the operation.

"To combat the symptoms of acidosis, as Dr. Frank says, glucose should be given by the mouth or rectum, in mild cases, and normal saline solution subcutaneously in severe cases.

"We have never had a case of acidosis following a tonsil and adenoid operation in our work at Lakeside Hospital. We think the reason that we have avoided acidosis is because the patient is deprived of food and water for only a short time; an appropriate dose of morphin and atropin is given thirty minutes before the operation; the total period of anesthesia is shortened by beginning it with nitrous oxid; our dissections are done carefully to avoid trauma; hemorrhage is controlled by prompt ligation and thus depletion and vomiting are avoided; the patient is given water as soon as possible after the operation."

Dr. E. M. Holmes, Boston, Mass., cited a case which had recently come under his observation. The patient was an only child, six years old, suffering from progressive deafness, with a marked adenoid growth which had been present for some time. Dr. Dunn saw the child and gave it a clean bill of health before operation. It was suggested that a small amount of chloroform be administered, and accordingly 42 drops were given. Removal of the adenoid growth was followed by a very small amount of hemorrhage, much less than usual, and in four or five minutes

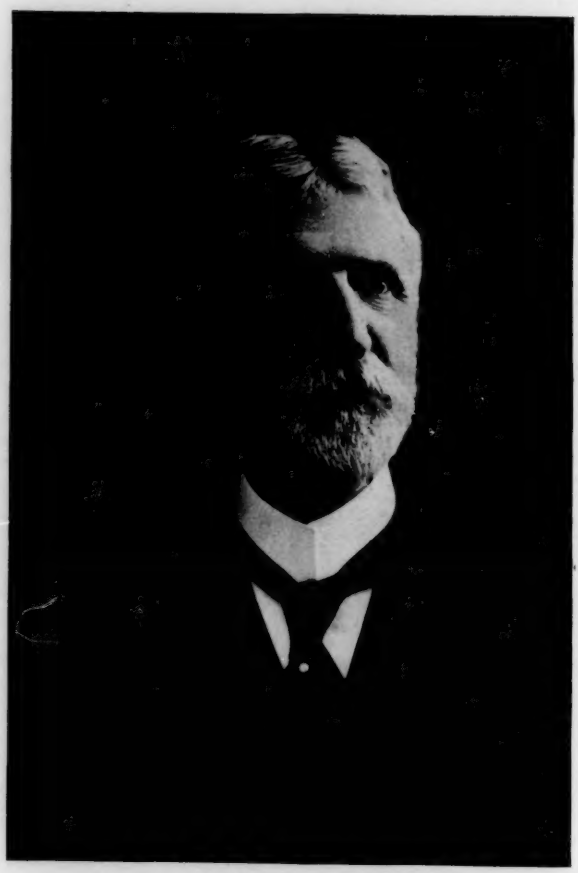
the child was apparently entirely recovered from the anesthetic, without vomting or other disturbance. The operation was at about 8 o'clock; at five o'clock the child vomited. Dr. Dunn saw it within half an hour, and made the diagnosis of acidosis. The patient died the next morning, with all the signs and symptoms of acidosis. The anesthesia had lasted only five minutes.

Dr. Clifton M. Miller, Richmond, Va., had had so much trouble with acidosis after tonsillectomies, especially with the sub-acidosis group, that he had concluded that the best method of dealing with these cases was along the line suggested by Dr. Frank, and not to wait until the condition has appeared. With very young subjects he began to give water just as soon as possible, and he commenced with the alkalies as soon as water could be taken. Milk of magnesia, almost *ad libitum*, was given until there was an action from the bowels. Sodium bicarbonate was used in some cases. Since following this plan he had had no acidosis.

Dr. Robert Milligan, Pittsburgh, Pa., had recently had three very severe cases of acidosis, certain features of which were notable. In each case the length of time which elapsed before the vomiting came on was from eight to twenty-eight hours. In one case the child vomited every half hour for eight days. It lost twenty pounds during that time. This patient was a strong, well nourished boy, eight years old. The temperature rose with the onset of the vomiting, going up as high as 104.4°, and never lower than 102°. The pulse ran from 150 to 170. The abdominal tenderness was very marked, and the crying from thirst was pathetic. He tried various methods, including the use of calomel followed by milk of magnesia, but that which saved the child was intravenous injection of bicarbonate of soda. The treatment should be commenced before operation, especially in cases in which there has been much absorption from the tonsils. He had made it a rule to examine the urine in all his hospital cases, and if he found plus indican, he refused to operate. In private cases he gave glucosed candy, or glucose in other forms. Results had been better when this was done. Under no circumstances would he operate in the presence of acetone, because, with chloroform or ether anesthesia, there was always the danger of acidosis.

Dr. Joseph C. Beck, Chicago, Ill., had used bicarbonate of soda before operation ever since Dr. Lynch had recommended it to him, three years ago. He gave 30 to 60 grains in three ounces of water, by rectum, a half hour before operation. It was not practicable for him to have a urinalysis in all cases, as suggested by Dr. Milligan. He had found that vomiting had not occurred nearly so often since he had adopted this method. The occurrence of vomiting, however, should not be taken immediately to mean acidosis, as it was largely due to the swallowing of blood and mucus.

Dr. Frank, in closing the discussion, said he had never used Fisher's solution, as suggested by Dr. Fairbairn, because he had found the glucose solution with bicarbonate of soda very satisfactory.



G. Hudson Makuen

IN MEMORIAM

Dr. George Hudson Makuen died February 21, 1917, of a heart attack, at Goshen, N. Y., the home of his birth. Here began and ended the life of a useful, dignified and progressive member of the medical profession.

Dr. Makuen was born in Goshen, N. Y., July 16, 1855. He was a graduate of Yale University, of the class of 1884, received his medical degree from Jefferson Medical College in 1889, and after several years of general practice in Philadelphia entered upon the specialty of laryngology and otology. In 1897, he was elected Professor of Defects in Speech at the Polyclinic Hospital and College for Graduates in Medicine at Philadelphia.

His activities in special practice were mainly along the lines of defects in speech. In this field he gained recognition as a foremost authority. His early training as a teacher in elocution and oratory, his special practice in laryngology and dose study of the psychology of the defective child qualified him pre-eminently to the rank of leading authority in the practice and literature of this unusual specialty.

From close personal touch with our departed friend we know with what handicaps and difficulties he was confronted in urging his fellows in laryngology to study and help develop this important field in our specialty. Success in this work is only attainable by unusual patience, perseverence, careful analysis of each case and a world of sympathy. All of these attributes our friend possessed to a bountiful degree. His kind and cheerful disposition secured

for him the immediate confidence of the unusual child; his fair-mindedness and logical training won the esteem of his fellows and elected him to positions of honor in their assemblies.

In 1901 he was elected chairman of the Section on Laryngology and Otology of the American Medical Association; in 1912 he was President of the American Laryngological, Rhinological and Otological Society, and in 1916 President of the American Laryngological Association.

His quiet, modest and dignified bearing were pronounced characteristics even in his more intimate associations with his professional confreres; his refined, cultured mind, his genial form of address, his carefully gleaned experiences in his special work, made him an important and influential factor in the development of laryngology. His numerous and valuable contributions to the literature of this field of medical science were like his character,—dignified, graceful, deliberate and convincing.

Laryngology has lost a strong and active worker and the particular specialty of defects in speech, has lost its most important and valuable champion. He was a good man, a kind friend, an able physician and a devoted husband.

As his many literary activities included a personal and active association on the editorial staff of THE LARYNGOSCOPE, we feel it our privilege, even though it be a sad one, to extend to Mrs. Makuen our heartfelt condolence and the sympathy of his many friends among the fellows in laryngology and otology. His scientific work will always be a stimulus to his fellows and his memory cherished.

M. A. G.

1916

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NOTE.—All titles marked with a * are abstracted under their respective numbers in the second section. All articles marked with a † have appeared as original papers in THE LARYNGOSCOPE. All articles marked with a § have been abstracted in THE LARYNGOSCOPE.

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DIGEST OF OTO-LARYNGOLOGY.

5

Xanthosia and Other Septal Hemorrhages. CHESTER C. CATT, *Jour. A. M. A.*, Dec. 2, 1916.

As nose bleed from general causes, such as anemia, hemophilia, heart and kidney disease, is rather infrequent, they will not be considered.

The most frequent cause of septal hemorrhage is xanthosis, and occurs most often at the anterior part of the septum. At first the bleeding is slight and goes unnoticed, later becomes more profuse and may ulcerate into the septal artery. It appears as a yellowish spot and is seen as frequently on straight as deflected septums.

The treatment preferred by the author is to raise the mucous membrane and perichondrium from the cartilage and pack between the perichondrium and cartilage with iodoform gauze. The pack is left in for two days and usually does not need to be replaced. If both sides of the septum are involved, they should be done at separate times, or a perforation will result. FRANCIS R. PACKARD.

7

Deflected Septum as a Causal Factor in Sinus Disease. H. M. GODDARD, *Jour. Ophthal., Otol and Laryngol.*, Jan., 1916.

Besides emphasizing the marked deflections of the septum as of etiological importance in sinus disease the author calls attention to the more moderate types of deviation which are frequently overlooked. In these cases the patient rarely complains of nasal obstruction, yet in these very cases where the deformity is of mild grade it was found to be the principal cause of the trouble, the correction of the deviation resulting in prompt clearing up of the sinusitis. The article contains a description of the technique of the submucous operation. ED.

9

Congenital Tumors of the Septum. HARRY HAENISCH, *Zeitschr. fur Laryngol., Rhinol. und ihre Grenzgeb.*, Bd. 8, H. 3, Sept. 15, 1916.

The author describes the histological findings in a case of tumor of the septum which differed from that of fibroma, bleeding septum polypus, and of the malignant growths in that it consisted of the normal elements of the mucous membrane of the septum. He proposes the name of "appendix septi congenita" to this form of growth. ED.

10

An Investigation Into the Results of the Submucous Resection of the Septum in Children. CHARLES H. HAYTON, *Jour. Laryngol., Rhinol. and Otol.*, April, 1916.

Of 31 patients ranging in age from six to fourteen years, in 10 patients (33 per cent.) there was broadening of the nose with saddle-backs (six). In 6 patients (20 per cent) the nose was straighter and in 15 patients (47 per cent) there was no change. No perforations were discovered in the 31 cases examined. No atrophic conditions were seen. The broadening and dimpling of the nose can be accounted for by the fact that newly formed fibrous tissue has a great tendency to contract. ED.

15

Submucous Resection of the Nasal Septum. J. L. MAYBAUM, *Amer. Jour. Surg.*, Aug., 1916.

Adenoids and narrowing of the nares should receive proper operative attention in order to obtain the fullest benefits from submucous resection. The supine position of the patient, the head slightly elevated, is the ideal position while operating, as shock is eliminated and better access to the floor is obtained. Under favorable conditions packing of the nose may be dispensed with after the operation. Post-operative manipulations in the nose should be avoided for a few days to minimize the possibility of infection. Ed.

27

Adenoids as a Factor in Amblyopia. CHARLES T. ADAMS, *Jour. Maine Med. Assn.*, Dec., 1916.

The author presents twenty-six cases in which defective vision and accompanying headaches were either entirely corrected or very greatly improved after removal of the patient's adenoids. With nineteen cases reported by him in 1913 this makes a total of thirty-five cases. ED.

32

Pathogenesis of the Nasal Neuroses. C. P. GRAYSON, Trans. American Laryngol. Assn., 1916.

The author believes that at least in the majority of these cases there is an underlying neurasthenia or even a psychasthenia, of which the nasal neurosis is merely a localized manifestation. His experience has been that almost two-thirds of his cases have given a fairly clear history of inherited neurotic tendency and in almost all the others there have been perfectly evident and sufficient reasons of an emotional, mental or physical nature to fully account for that general nervous exhaustion of which the loss of vasomotor equilibrium was but a sequel and a symptom. There is, however, another group of cases the pathogenic explanation of which may be based upon the theory of anaphylactic reaction. But, he firmly believes that in a very large percentage of cases the neurasthenia primarily, and the nasal neurosis secondarily are the products of a long continued violation of diet, exercise, work and play. ED.

34

Diagnosis and Management of Vasomotor Disturbances of the Upper Air Passages. J. L. GOODALE, *Boston Med. and Surg. Jour.*, Aug. 10, 1916.

In a large proportion of vasomotor diseases of the upper air passages the disturbances are dependent upon the entrance of foreign protein into the system, either through contact, inhalation or ingestion through the mucous membrane of the respiratory or gastrointestinal tract. Foreign proteids may perhaps also develop in or upon these mucous membranes through autolysis of pathogenic or saprophytic bacteria. When the skin reactions to the various classes of pollen proteids have been determined, the management of cases will depend largely upon the relative preponderance of the local reactions in relation to the clinical history. If the cause is found to be seasonal, as in hay fever, immunization by injection of pollen extracts is likely to prove of service. Treatment must probably be repeated annually. If the cause is perennial and is due to inhalation

of foreign proteins it is wiser to avoid the cause rather than to seek to effect a cure by immunization. Septic foci should be removed in order to eliminate any bacterial origin of the trouble. ED.

35

Skin Reactions Excited by Various Bacterial Proteids in Certain Vasomotor Disturbances of the Upper Air Passages. J. L. GOODALE, *Boston Med. and Surg. Jour.*, Feb. 17, 1916.

Cultures were taken from eight cases of vasomotor rhinitis and of asthma of the infectious type. The staphylococcus pyogenes aureus and albus and the pneumococcus were the organisms found. Another organism having some of the characters of the Friedlander bacillus was isolated from a case of severe asthma. Cultures were also grown from laboratory stock of micrococcus tetragenus, micrococcus cereus flavus and staphylococcus pyogenes citreus. All the cultures were grown on agar slants and then, with the object of killing the organisms without coagulating their albuminous constituents they were exposed to ether vapor for a period of four days. The colonies were then transferred to a 12 per cent dilution of alcohol in order to extract the bacterial proteids; the bacteria being one-third by volume on centrifuging that of the alcohol dilution added. After a week the fluids were tested on the skin of patients in the same manner as employed in the diagnosis of plant sensitization. A total of fifty cases of vasomotor rhinitis and of asthma were examined by the application of the staphylococcus albus, aureus and citreus, the micrococcus tetragenus and the cereus flavus.

The positive skin reaction proceeds to develop in the course of 10 or 15 minutes and ranges from a narrow band of hyperemia bordering the scratch to a hyperemic area of two centimeters in diameter. Edema occurs in the more marked cases.

The experiments showed that in certain anaphylactic individuals exhibiting symptoms of perennial vasomotor disturbances of the upper air passages an immediate and characteristic reaction is elicited by the application to a scratch of the skin of soluble extracts of staphylococcus albus, areus, citreus and micrococcus tetragenus, and also by the bacillus resembling the Friedlander bacillus. Not all patients are sensitized equally to these organisms. On the other hand, certain cases of vasomotor disturbances clinically indistinguishable from the above showed no reaction to the organisms tested. Individuals without vasomotor disturbance developed no reaction in any case. ED.

38

Therapeutics of Hay-Fever. A. PARKER HITCHENS, *New York Med. Jour.*, Oct. 7, 1916.

The following plan of treatment is suggested: A thorough rhinoscopic examination. As an aid in identifying the variety of pollens inhaled by the patient a special button should be worn or kept in his vicinity, consisting of a metal frame in which is held a microscope cover glass coated with glycerine mixture used by Blackley. The microscopic examination is made after 24 hours exposure. Prophylactic treatment may be begun two or three months before the hay fever season and an initial dose of extract containing 0.0025 mg. nitrogen is sufficient to produce some im-

munizing response without producing any disagreeable effects. Subsequent injections are given at five to seven day intervals. The increase in dosage will depend upon the local reaction; if the redness at the point of the first injection is slight the second dose may be increased to double the original amount. No further increase is advised. ED.

41

Hay-Fever; Its Treatment with Autogenous Vaccines and Pollen Extract. LEON S. MEDALIA, *Boston Med. and Surg. Jour.*, Aug. 10, 1916.

Six cases treated with autogenous vaccines gave encouraging results. The cultures were obtained by passing a sterile swab along the floor of the nose to the posterior wall of the pharynx in such a way as to wipe off as much of the mucous lining of the passage as possible during the withdrawal, and then, implanting in the ordinary way on glucose agar, blood serum, bouillon, and blood agar. Several tubes of glucose agar slants are used, sufficient for an autovaccine. Cultures are also made from the throat by swabbing off the tonsils, going as deeply as possible between the pillars of the fauces, and from the conjunctiva by placing a swab upon it, covering it with the lids, and having the patient squeeze the lids tightly, so as to have the swab soak up any secretion present. ED.

51

Direct and Indirect Hay-Fever. W. SCHEPPEGRELL, *Jour. Amer. Med. Assn.*, Sept. 16, 1916.

There are two forms of pollen causing hay fever: the one, spiculated in form and low in protein, causing direct hay fever; the other, unspiculated and high in protein causing the hay fever through absorption of the protein. The severity and duration of the attack in the direct form depend on the number of pollen grains in the atmosphere and the length of the pollen spicules (ragweeds); in the indirect form, on the amount of protein contained in the pollen and the number of pollen grains in the atmosphere (grass pollen). ED.

53

Rag Weed Pollen in the Nasal Secretions of Hay-Fever Patients. DR. W. SCHEPPEGRELL, *Medical Record*, October 14, 1916.

The author reports a case in which the nasal mucus of a patient suffering from an acute attack of hay fever was collected and showed under microscopic examination an average of seven ragweed pollen to each division of the mucus examined, totalling fifty-six pollens in the secretion collected. In this instance it showed the direct relation of the pollen to the attack, the number of pollen required to cause the reaction, and the relief afforded by the discharge of the mucus containing the pollen. M. D. LEDERMAN.

56

Pollen Extracts and Vaccines in Hay-Fever. S. STROUSE and I. FRANK, *Jour. Amer. Med Assn.*, March 4, 1916.

The pollen origin of hay fever has been demonstrated and it is difficult to reconcile good results from bacterial vaccines in a disease the symptoms of which are essentially those of pollen protein sensitization. Strik-

ing results have, however, been reported from vaccines and it is possible that bacteria may play a secondary part. The conception of hay fever as a pollinosis associated with a bacterial subinfection can be used to explain the partial relief obtained by bacterial vaccines and by pollen extracts. In the author's experiments all the autogenous vaccines were made from blood cultures on agar taken from the inside of the nose. In most instances a pure culture of the staphylococcus albus was obtained. Of thirteen cases treated by vaccines, three were cured, eight were either somewhat or greatly relieved and in two there was no change. Of sixteen cases treated by pollen extracts all were relieved, but there was no cure in any of them. ED.

62

Sarcoma of the Nose; Report of a Fatal Case with Metastasis in the Cervical Glands and in the Brain. J. PAYSON CLARK, *Annals Otol., Rhinol. and Laryngol.*, June, 1916.

Patient a woman, 64 years old. Tumor the size of a marble on the outer wall of the left nostril just above the vestibule. Growth removed. Two months later an enlarged gland could be felt under the left side of the jaw. This was excised and proved to be spindle-cell sarcoma which thus determined the character of the original growth. Coley's treatment tried without result for two months and at the end of that time a small recurrence was found in the nose. Complete glandular dissection of left side of the neck successfully performed. Three months later the patient developed mental symptoms, convulsive attacks, motor aphasia, dysphagia, coma. Autopsy showed three metastases in the brain. ED.

64

Primary Nasal Polypi. OSWALD LEVINSTEIN, *Zeitschr. fur Laryngol., Rhinol u. ihre Grenzgeb.*, Bd. 8, H. 1, Jan. 15, 1916.

The author describes a case of unilateral, solitary polyp of the nose in a boy seven years old and calls attention to the infrequency of nasal polypi in children. In the group of such cases collected by Avellis all the cases possessed certain characters in common; unilateral, solitary occurence, considerable size, cystic structure, absence of bleeding on removal. In all of Avellis' cases the origin of the polyp was the maxillary antrum. This seat of origin was absent in the present case. It differed also from Uffenorde's cases of primary nasal polyp in the same respect as no evidence of any involvement whatever of the antrum could be demonstrated, notwithstanding that the tumor had been of a year's standing. ED.

67

Histological Features of Rhinophyma. SIR. WILLIAM MILLIGAN, Proc. Royal Soc. Med., Laryngol. Section, April, 1916.

Examination of the lobulated and hypertrophied tissue removed from the patent's (male, 58 years old) nose showed the surface epithelium intact and in most places not thickened at all. The main thickening occured in the subcutaneous tissue where there was considerable hypertrophy. Many of the sections showed a deposit of fat in the subcutaneous tissue. The blood vessels and lymphatics enlarged; interstitial hyperplasia; enormous dilation of the sebaceous glands to four or five times their normal size. The lobulated condition is due to thickening of the subcutaneous tissue. ED.

69

Endothelioma of the Nasopharynx Apparently Cured by Radium. JAMES ADAM, *Jour. Laryngol., Rhinol. and Otol.*, August, 1916.

This patient, female, 36 years of age, had chronic suppuration with slight discharge in the left ear from infancy and a discharge from the right ear for nine months. The right external canal was dilated with what seemed to be a large osteoma; but this growth, though firm to touch, lacked the hardness of a bony growth and entirely filled the canal. The right choana (the patient's intonation was nasal) was found to be entirely occluded and the right half of the palate pressed downward. On pharyngoscopic examination a large mulberry-like tumor could be seen completely filing up the right half of the nasopharynx and projecting slightly to the left of the vomer. It seemed to be growing from the Eustachian orifice. Growth from the ear removed and proved to be an endothelioma. The author consequently tied 50 mg. of radium bromide screened by 1 mg. gold into the nasopharynx close to the tumor and let it remain for twenty-three hours. Within a fortnight the tumor had shrunk so much that all that could be seen of the growth was a small round mass round the Eustachian orifice; the right was free and the discharge had stopped from both ears. In about six weeks the only trace of the tumor was the thickened rounded margin of the Eustachian opening. The same amount of radium was again tied in for eleven hours. At date of the report the parts looked normal except that the tubal orifice was large and somewhat crateriform. ED.

71

Sarcoma of the Nasopharynx Treated with Radium and Mesothorium. CLINTON C. COLLIER, *Jour. Ophthal., Otol. and Laryngol.*, Oct., 1916.

Large round cell sarcoma. Patient a man 39 years old. Twenty-four exposure to 100 mg. mesothorium. No change in condition of tumor after two weeks. Twenty-four hour exposure of 150 mg. radium. Seven days later growth began to necrose. Recovery. ED.

74

Craniopharyngeal Duct Tumors. H. JACKSON, *Jour. Amer. Med. Assn.*, April 8, 1916.

The author reports a case and discusses thirty-seven cases collected from the literature. The gross pathologic characteristics of hypothysis duct tumors are typical. They are always in the median line of the base of the brain, bounded anteriorly by the optic chiasm, posteriorly by the pons, above by the floor of the third ventricle and below by the sella. They may encroach laterally on the peduncles and temporal lobes. The circle of Willis usually surrounds the tumor and the hypophysis itself may be found intact or be pressed against the floor of the sella. They usually start from the infundibulum, and the first five cranial nerves may undergo a pressure atrophy, but the olfactory nerves usually escape. The optic nerves are most seriously affected. The foramen of Monro may be occluded and cause internal hydrocephalus. The size of the tumor is usually that of a pigeon's or hen's egg; the majority are cystic. Histologically they show an embryonic connective tissue wall rich in nuclei and blood vessels and undergoing hydropic degeneration with a produc-

tion of pseudocysts. In the stroma lie masses of epithelial cells sharply demarcated by a deeply staining layer of high cylindrical cells below which are many layers of ovoid or fusiform cells, with lightly staining nuclei. From a study of the thirty-eight cases in the literature, more than 70 per cent occur in early life (under 40 years), and 25 per cent over 40. The clinical courses vary. Of seventeen cases in which the symptoms were clearly stated, twelve patients showed the symptoms of the Frolich syndrome, and this, with the early disturbance of vision, should suggest a tumor of the hypophysis. The details of the clinical symptoms are given and the diagnostic signs pointed out. The active treatment is unsatisfactory. It is surgical, consisting in puncture and drainage of the cyst by a transphenoidal route. Lately the injection of the extract of the posterior lobe of the hypophysis has been used with the idea of absorbing the contents of the cyst. In the case described the patient was a man aged 18. Two operations were performed, each without permanent good results, but a third one gave some relief extending to the present time, one and a half years altogether. He has also been treated with pituitary extract by injection. Jackson concludes as follows: "1. Most cystic and solid tumors originating from the region of the infundalbulum and anterior lobe of the hypothysis grow from embronic rests of buccal ectoderm from the craniopharyngeal duct. 2. They are the most common type of intracranial tumor associated with the Frolich syndrome. 3. Eye changes occur early. Symptoms of acromegaly are absent. ED.

75

Nasopharyngeal Neoplasm Dispelled by Radium. A. BROWN KELLY, *Jour. Laryngol., Rhinol. and Otol.*, Aug., 1916.

Patient, male, 57 years old. Nasal obstruction. Nasal fossae free, but nasopharynx largely occupied by growth attached to roof and resting on palate. Surface irregular, finely granular and red in places. Profuse hemorrhage. A packet of 50 mg. radium screened with 2 mm. silver and covered with 2 mm. rubber was drawn into nasopharynx so as to lie between the growth and soft palate and kept in this position for 24 hours. For a week afterwards patient suffered a good deal from ulceration of the palate and fauces. The radium had been applied on Jan. 27, 1915 and on March 10 it was found that the tumor had disappeared except for a small rounded mass on the roof of the naso-pharynx hanging down so as to conceal the upper half of the septum. Radium again introduced for 24 hours. May 14 no sign of growth. Last examination February 22, 1916, no sign of recurrance of neoplasm. ED.

86

A Clinical Study of Sixty Cases of Post-Nasal Infections, with Report of Six Cases Complicated by Acute Hemorrhagic Nephritis. GEORGE E. BAXTER, *Arch Pediatrics*, Oct., 1916.

The diagnosis of post-nasal infection was made from the presence of constitutional symptoms of an infectious condition with negative physical findings in all parts of the body except in the nasal passages. The symptoms in the nose varied from a mild coryza to a mucopurulent discharge from a post-nasal space into the pharynx (in 75 per cent of the cases there was also otitis media). In some cases there was adenitis

of the lymphatic glands posterior to the sternomastoid muscle (these glands drain the post-nasal space) but in no case was there suppuration of the glands. In some of the cases a bloody discharge was observed through the nose and through the pharynx. The treatment was simple. The results obtained in the cases of otitis media without paracentesis were practically as good as those where a paracentesis was done, that is to say, that while paracentesis is often indicated (bulging, reddened ear drum) in the author's judgment it should not be done in every case of otitis media. In all cases the ear was irrigated with warm boric acid solution or bicarbonate of soda solution twice or three times every twenty-four hours. In no case was there a mastoid involvement. ED.

90

Anatomical Changes in the Air Passages in "Gas Asphyxiation." G BILANCIONI, *Arch. ital. di Laringol.*, Oct. 10, 1916.

This paper deals with experiments to ascertain the effects of "phosgene" (carbonyl chlorid) and bromin on the air passages of rabbits and rats. The lesions caused by asphyxiating gases are as follows: Lesions of contact caused by breach of the mucous membrane of the larynx, trachea and large bronchi, sometimes of the pulmonary alveoli and the esophagus. The membrane is in a state of necrobiosis or is badly lacerated and detached in large strips from the underlying layer. Then there is edema in the submucosa of the esophagus and in the lung where an albuminous deposit takes place in the bronchi and the larger alveoli. The most common lesion is the very intense hyperemia which by rupture of the vessels leads to the effusion of blood into the submucosa of the larynx or into the pulmonary parenchyma and thence into the bronchi. This phenomenon occurs mostly with poisoning by phosgene. The action of this gas also causes thromboses in vessels of a certain size. In rats poisoned with phosgene fragmentation occurs in some intrinsic muscles of the larynx. According to Bilancioni this is not due to dissolution of the connective tissue of the muscle cells which makes the fibers appear divided into segments, but to actual multiple ruptures of the muscle fibers. These occur irregularly, hence the fragments are unequal in length and some have lost their nuclei. The ends of the fragments are irregular and show fringes, the splitting extending along the fibers. Examination of the lesions, produced experimentally, shows that they correspond perfectly with those observed in soldiers. The laryngeal lesions, especially those of hemorrhagic character and the edamatous imbition of the lungs, are the most conspicuous features in the clinical picture and cause the most agonizing symptoms. In the upper part of the respiratory tract, especially the nasopharynx, the lesions are few or entirely wanting, partly due to the defensive reaction of these parts and partly to the shortness of the time the gas is in contact with them. ED.

94

Retronasal Angina. DR. BLUMENTHAL, *Berliner klin. Woch.*, Feb., 28, 1916.

The course of this condition is somewhat as follows: A man seemingly in excellent health is suddenly attacked with fever and headache, and is unable to refer his disagreebale sensations to any one locality.

Some patients only complain of dryness and tickling in the nasopharynx or of a somewhat stronger mucous discharge. The voice has a nasal tone. Anterior rhinoscopy shows nothing abnormal while the posterior examination may reveal a great number of changes—marked inflammation of the mucosa of the nasopharynx, especially at the vertex, with thick, tenacious, yellow-green mucus on the upper portion of the choanae. Otitis media may be a complication, but as a rule, all this subsides in a few days leaving no residues. Occasionally a renal lesion, varying from a slight transitory albuminura to a hemorrhagic nephritis may occur. In most instances the offending organism is the streptococcus. The author also calls attention to the characteristic swelling of the lymph nodes along the posterior border of the sternomastoid, as far as the mastoid process. The author reports on a number of patients in a ward of scarlet fever convalescents. ED.

96

The Innervation of the Nasal Chambers. A. P. BRUBAKER, *Annals Otol., Laryngol. and Rhinol.*, Sept. 1916.

The sphenopalatine or Meckel's ganglion is no more than a sort of clearing house for nerve impulses received from the central nervous system by means of preganglionic fibers and transmitted to the glandular epithelial cells and the muscle cells of the nasal blood vessels by means of postganglionic fibers. The nerve cells of this ganglion possesses no spontaneity of action of their own, but are wholly dependent for their excitation upon nerve impulses discharged by cells of the central nervous system. As a primary condition for their activity they must possess a certain degree of tonicity, this degree of excitability being due to a reaction between the constituents of the cells and the lymph and blood by which they are surrounded. Given this tonus they may be excited to activity or inhibited either by the arrival of impulses transmitted from the surface of the nasal mucosa by the nasal and other branches of the trigeminal nerve and from the skin by the cutaneous nerves, or by the arrival of impulses descending from the cerebrum in consequence of psychic states. Whether the excitation is reflex or direct the resulting change in secretion and vascularity will be proportional to the intensity of the peripheral or the cerebral excitation and the degree of tonus possessed by the central cells themselves and the tonus of one or more of these centers may be abnormally increased or decreased by changes in their nutrition, or increased production or diminished elimination of more or less toxic products of metabolism. ED.

103

External Nasal Deformities. Correction by Subcutaneous Method. LEE COHEN, *Jour. A. M. A.*, Dec. 2, 1916.

The author prefers the cleansing of the vestibule of the nose by removing the hairs, douching, soap and water, alcohol and ether. He thinks that iodin should not be used, and attributes infection in one case to its use. When general anesthesia is used a postnasal tampon is inserted to prevent blood from going into the throat. He makes it a rule in undermining the skin to reintroduce the instrument as seldom as possible. Author reports four cases in which deformity was corrected by undermining the skin and sawing the nasal bones at their base and holding

them in place. Iodoform packing is used, also special copper splints. First dressing allowed to stay in place for four days, then changed every 48 hours. FRANCIS R. PACKARD.

105

Nose and Throat Complication and Sequelae of Grippe. WM. LEDLIE CULBERT, *New York Med. Jour.*, Dec. 16, 1916.

For practical purposes it may be considered that ordinary cases of grippe are manifested at first only as severe acute rhinitis, with extensive involvement of some or all of the accessory sinuses; but when the process extends, for example, into the lacrymal duct, the Eustachian tubes, the tonsils or the deeper parts of the respiratory tract, it may properly be considered as a complication or a sequel. Influenza bacilli generally obtain their first foothold in the nasal mucous membrane, giving rise to manifestations of an ordinary acute coryza, with consequent swelling of the membrane, interfering with drainage from the nasal cavity itself and the small ducts which drain and ventilate the nasal acessory sinuses, any or all of which may be attacked. The process may remain simply catarrhal in its nature until the disease is checked or run its course; but when the organisms are unduly retained in the cavities by abnormal anatomical structure of the nose they develop rapidly and the severity of the symptoms will depend upon the virulence of the organisms and the resistance of the patient. The drainage from all the inflamed area of mucous membrane follows the line of least resistance and usually flows into the nasopharynx, causing irritation and swelling of the mucous membrane, it may also give rise to infection of the tonsils, peritonsillar abscess, acute cervical adenitis, and in children even a retropharyngeal abscess. ED.

107

Anosmia and Sellar Distension as Misleading Signs in the Localization of a Cerebral Tumor. HARVEY CUSHING, *Jour. Nervous and Mental Diseases*, Nov., 1916.

In a patient complaining of headache and failing vision and giving pronounced general pressure phenomena including anosmia and sellar distortion and choked disc the presumptive diagnosis lay between a subtentorial lesion and an interpeduncular one, though the choked disc and the absence of amenorrhea or other secondary pituitary manifestations spoke strongly against the latter. There were no convulsions, no abnormalities of sensation, no aphasia, no apraxia, no nystagmus, no paralysis of extremities, no motor twitchings. Caloric tests negative. Right subtemporal decompression was done but no tumor was found and only 2 c.c. fluid was secured. Patient subsequently died and at autopsy a large endothelioma was found on the left side, greatly displacing the hemisphere. The sella turcica showed not only a complete pressure absorption of the dorsum but a great widening of the entire space between the four clinoid processes. The olfactory tract itself was bent at an acute angle around the sharp dural edge connecting the two anterior clinoid processes and at this edge was thinned to a mere ribbon. Therefore, the anosmia was attributable to the mechanical distortion of the olfactory tracts. While anosmia and secondary distension of the sella turcica are common accompaniments of interpeduncular tumors of pituitary origin and may

be signs of positive localizing value, this case tends to show that these may be misleading signs for the anosmia may be produced by mechanical injury resulting from distension of the interclinoidal space caused by pressure absorption of the pituitary fossa. ED.

111

Smell and Taste Sensations After Intravenous Salvarsan Injections. LEO FORSCHHEIMER, *Dermatologisches Centralblatt*, No. 6, 1916.

Forschheimer has observed that within 10-12 seconds after the injection the patients stated that they smelled and tasted "ether." ED.

113

Cessation of Vertiginous Attacks Following Intranasal Treatment. ROBERT FULLERTON, *Glasgow Med. Jour.*, Nov., 1916.

Four cases are reported in which the vertiginous attacks ceased after removal of the nasal obstruction due to hypertrophied turbinals. What the mechanism involved is in the causation of such attacks is hard to say. To see how varied and subtle the exciting causes may be it is only necessary to mention that among other causes vertigo may be induced by anemia, rotation of the body, watching running water, tobacco smoking, or looking down from a great height. Whether the remote cause of the disturbance of co-ordination be toxic, psychical or mechanical it is not improbable that the immediate cause is one and the same in all cases. From the fact that dizziness is often associated with anemia and that pallor of the face is seen in vertigo of whatever cause, it is not unreasonable to assume that anemia of the brain structures concerned in the transmission of efferent and afferent impulses necessary to bring about co-ordination, is the immediate cause. ED.

114

Disinfection of the Nasopharynx of Meningococcus Carriers. M. H. GORDON, *British Med. Jour.*, July 1, 1916.

1. The air of an ordinary room when brought to point of saturation by means of a steam spray containing 2 per cent chloramine acquires pronounced bactericidal properties for *staphylococcus epidermidis*. 2. Such air can be tolerated by human beings for a period varying from six to twenty minutes without marked discomfort and without harm. 3. When inhaled through the nose this air succeeds temporarily in destroying the meningococcus in the nasopharynx of carriers. ED.

115

Disinfection of Meningococcus Carriers. M. H. GORDON and M. FLACK, *British Med. Jour.*, Nov. 18, 1916.

In the case of persons whose nasopharynx yields only a few colonies of meningococcus good results follow local treatment either by direct application of a 1 per cent solution of chloramine or by subjecting them to the inhalation of a steam spray charged with zinc sulphate. In persons whose secretion from the nasopharynx yields a copious growth or a pure culture of the meningococcus best results are obtained with chloramine. ED.

116

Cultural Requirements of the Meningococcus. M. H. Gordon, T. G. M. Hine and M. Flack, *British Med. Jour.*, Nov. 18, 1916.

The meningococcus grows exceedingly well on a medium called trypagar. This medium is prepared as follows: Agar, 2.5 per cent is dissolved in trypsinized broth and to it is added 5 per cent of a sterilized extract of pea-flour prepared as follows: pea-flour 10 gms., salt 10 gms., distilled water 100 c.c.; steam for twenty minutes and filter. The addition of 2 per cent serum, or even better, ascitic fluid, increases the size of the colonies and the vitality of the meningococci. Ed.

117

Perverse Smell Sensations After Neo-salvarsan. Grahn, *Munchener Mediz. Woch.*, No. 5, 1916.

The author noted that immediately after injection of neo-salvarsan the patient's breath had a smell of ether and that the patient would remark about the same odor. Ed.

124

Acute Purulent Infections of the Nose, Throat and Ears. Our Responsibility to the Public. Hill Hastings, *Jour. A. M. A.*, Dec. 2, 1916.

The idea of this article is to endeavor to educate the public in the matter of prevention of common colds, and thus avoid some of the serious complications that result. The public is unaware that 90 per cent of mastoiditis follows colds in the head, and sore throats. Proper supervision of swimming pools and the avoidance of sneezing in public conveyances, and the care of infectious nasal secretions is of great importance. Atmospheric changes such as drafts, and the lowering of bodily temperature from excessive fatigue are important etiologic factors in "colds." Plenty of fresh air in the sleeping chamber, with a daily cold bath are other important measures in the prevention of colds. Nearly all the complications of colds, i. e. sinusitis, mastoiditis, middle ear suppuration, etc., are to be treated by the method of early drainage. Many of these complications can be prevented when a cold has occurred, by avoiding the use of douches in the nose that force the infectious secretions into the Eustachian tube, by severe blowing of the nose, and avoiding swimming pools at that time. Francis R. Packard.

129

Three Cases of Multiple Telangiectases with Epistaxis of Familial Type. R. Hutchinson and W. J. Oliver, *Quarterly Jour. Med.*, Jan., 1916.

Two of the patients showed multiple telangiectases of the face with lesions on the buccal mucous membrane. All three gave a history of frequent attacks of nosebleed occurring since childhood, with a definite history of nosebleeding in other members of the family.

Case 1. Male, 49. Attacks of epistaxis as long as he could remember. Worse during the last two years, especially in the morning. Spontaneous bleeding from lips, sometimes preceded by a feeling of soreness, began eight years ago, but these had entirely ceased during the last two years. Occasional bleeding from the ears about the helix and from corner of the right eye. Occasional bleeding from the dilated superficial veins on the nose. No hemoptysis, hematuria or hematemesis of fresh blood.

He did not bleed particularly if he cut himself and bleeding from dilated vessels was easily stopped by application of cold water. Ordinary cauterization of lesions in nose and calcium lactate were without effect. Lesions successfully treated by diathermy. The second patient was the father of the first and the third patient was a son of the first. Their histories and lesions were similar to that of their relative. ED.

132

Relation of Nasal Disease to Headache. EVERETT JONES, *Jour. Ophthal., Otol. and Laryngol.*, Jan., 1916.

The following nasal conditions may be the cause of headache: Swelling of the mucosa with pressure or irritation of the nerves; direct contact of the swollen mucosa; stasis following obstruction of the drainage passages; negative pressure in the sinus; re-absorption of toxins formed within the sinus; ulceration of the mucosa with involvement of the nerves; any condition which causes active congestion of the cranial circulation.

Facial neuralgia and migraine are often due to disease within the nasal accessory sinuses. Headache in the supraorbital region with superficial tenderness is usually due to pressure from hypertrophy of the middle turbinate. Headache in acute frontal sinusitis is present from the very beginning of the disease, first over the affected sinus, later in the vertex temporal or occipital regions. In anterior ethmoid disease there is pain between the eyes; when behind the eyes and nose the posterior ethmoids may be involved. The headache in sphenoidal disease is most excruciating within the head and through the temples or occipital region. ED.

136

Treatment of Ozena and Asthma with Autogenous Vaccines. Report of Cases. C. L. KLENK, *Missouri State Med. Assn. Jour.*, May, 1916.

The vaccines, composed of a pure culture of the coccobacillus of Perez isolated from the patient's nose, have given very gratifying results. If the patient's serum from which the organism has been isolated agglutinates the bacteria obtained from the rabbit in a dilution of at least 1 to 30 the findings are positive and the organism is used in the preparation of the vaccine. ED.

138

Foreign Body in the Nose for Fifty Years. CHARLES KRUSE, *Nordisk Tidskrift for Oto-Rhino-Laryngol.*, Nos. 2, 3 and 4, 1916.

The foreign body was a cherry pit which had been in the patient's nose since she was twelve years old. It was wedged in between the posterior end of the inferior concha and the corresponding lateral wall of the nose. There was some necrosis. Upon probing the pit fell into the epipharynx and was expectorated by the patient. The posterior part of the inferior concha was resected and the necrotic bone in the lateral nasal wall curetted. Complete healing in six weeks. ED.

139

Removal of a Large Rhinolith. D. B. KYLE, Trans American Laryngol. Assn., May, 1916.

Patient, male, 17 years old. Right nostril markedly obstructed by the septum which was deflected and perforated by pressure from a body in

the left nostril. This body was extremely hard, large enough to occupy the entire naris, forcing the septum to the extreme right, and was freely movable and not attached at any point. At operation, however, it was impossible to remove it in entirety because of its size and the fact that in relation to the surrounding bony structures it was like a ball in a socket. It was removed in small fragments with the aid of a heavy rongeur forceps. Hemorrhage was considerable so that the patient was cyanotic and in shock when taken from the operating room. There were post-operative complications (pneumonia, emphysema of the cellular tissue at the root of the neck and below the clavicles, and abscess of the inner canthus of the eye) from which the patient finally recovered. ED.

147

Atrophic Rhinitis (Ozena) and Tuberculosis. II. Tuberculin in Atrophic Rhinitis. JOHN MACKEITH, *Jour. Laryngol., Rhinol. and Otol.*, June, 1916.

The author is of the opinion that atrophic rhinitis is a tuberculous affection. Thirteen cases, of which four suffered from pulmonary tuber-**Atrophic Rhinitis (Ozena) and Tuberculosis. II. Tuberculin in Atrophic** culosis, were treated with tuberculin with the following results: Great improvement, 7; improvement, 3; improved, but relapsed, 2; uninfluenced by treatment, 1. The method of treatment used by the author was as follows: After the positive reaction has been obtained and all the signs and symptoms of this reaction have subsided the first therapeutic dose is given which consists of Perlsucht (bovine) tuberculin, 1:25. The injections are given in increasing doses, twice weekly, begininng in an adult with .01 c.c. Temperature is taken every four hours by the patient. This, together with the weight and general condition of the patient permitting, the dose is gradually increased until 1 c.c. of the pure undiluted P. T. O. is reached. At the completion with this course of treatment with Perlsucht-tuberculin-original, occupying about six months, treatment with Perlsucht tuberculin (P. T.) is started, the initial dose being .02 c.c., which, P. T. being fifty times as strong as P. T. O., is equivalent in strength to the last dose of P. T. O. The injections are given in ascending doses biweekly until 1 c.c. is reached. Treatment is now begun with Koch's original tuberculin, beginning with .25 c.c., practically equivalent to the last dose of P. T., and given in increasing doses until 1 c.c. O. T. is reached in the course of four or five doses. ED.

149

The After Effects in the Nose and Throat of the Usual Winter Cold. OTIS H. MACLAY, *Illinois Med. Jour.*, July, 1916.

The important throat complication is peritonsillar abscess. The important laryngeal complication is acute laryngitis, with a possible edema supervening. The nasal complication is infection of one or more of the sinuses. The author discusses the diagnostic features of these various after effects and also the treatment which has proved of most benefit. In regard to laryngeal edema, hot foot-baths may be given and a cold pack placed around the neck. Steam inhalations should be used. Locally a spray of adrenalin, 1.30 in normal salt solution should be directed into the larynx, followed within an hour by a soothing oil spray, containing a small amount of menthol. Predisposing factors to the laryngeal in-

volvement (sinus infections, abnormal alignment of nasal structures, diseased tonsils, etc.) should be sought for between attacks and corrected. ED.

150

Pituitary Tumor Treated with Pituitary Extract. V. MAGNUS, *Norsk Mag. for Laegevidensk.*, Oct., 1916.

This patient, 29 years old, had suffered from headache and other symptoms of pituitary tumor and for the last three months he had been blind. Some improvement followed a decompressive trephining operation and Roentgen exposures. Then pituitary extract was given systematically by subcutaneous injection and the tumor must have retrogressed to some extent as vision returned. However, although the patient's sight was considerably restored he refused further measures. ED.

164

Neo-salvarsan in Ozenous Rhinitis. DR. PISTRE, *Rev. de Laryngol. d' Otol. et de Rhinol.*, Jan., 1916.

A case report in which the administration of neo-salvarsan proved efficacious. There was, however, a history of syphilis, but the nasal condition antedated the syphilitic infection; it was probably aggravated by the lues. ED.

166

Rhinoplasty of the Lobe and Alae of the Nose. A. PONT, *Annali di Odontologia*, Nov., 1916.

The patient had had the lobe and most part of the alae of his nose destroyed by a howitzer explosion. The operation for the restoration of the nose consisted first, of a horse-shoe shaped incision one centimeter above the missing part in order to obtain a flap which was lowered and sutured to the cutaneous stump. The lower edge of the nostrils was thus reconstructed. The loss of substance which remained after this operation was filled up with a flap on the forehead and sewed with silk sutures to the edge of the nostrils. However, it could readily be foreseen that such a reconstituted lobe would tend to be flat rather than round and projecting like a normal lobe so that in order to correct this deficiency later Dr. Pont left the flap free from its point of junction on the forehead to the region of the loss of substance on the nose. About eleven days later the peduncle was cut, leaving the flap free upon the nose. About three weeks later, under general anesthesia, the free point of the flap, after being cut, was turned downwards and forwards so as to meet the edge of the frontal flap. The orifice of each nostril has been maintained by means of two rubber drainage tubes. The result has been perfect, esthetically and functionally. ED.

185

Anaphylactic Action of Cereal Grain on the Respiratory Tract. J. A. TURNBULL, *Boston Med. and Surg. Jour.*, Dec. 28, 1916.

In some individuals protein grains have a distinct anaphylactic reaction on the respiratory tract. These proteins may enter the system through the respiratory and gastrointestinal tracts. Boiling increases the action of the protein. High temperatures of 300 to 500 degrees F. will often destroy the anaphylactic properties of these proteins; but even after

500 degrees F. for one-half hour there remains an anaphylactic protein to which some are sensitive. Skin reactions may be obtained with wheat, barley, oats, corn and rice. Fifteen cases are reported in which respiratory troubles were caused by these grains. ED.

189

Bacteriologic Findings in Ozena. H. C. WARD, *Jour. Infectious Dis.*, Aug., 1916.

Of 50 cases studied the results were as follows: diphtheroids, 43 cases; staphylococci, all varieties, 37 cases; b. mucosus capsulatus, 30 cases; Perez' bacillus, 22 cases; streptococci, all varieties, 20 cases; b. proteus, all varieties, 20 cases; pneumococci, 20 cases; b. pyocyaneous, 12 cases. From this variety of findings the author does not, of course, accept the bacillus of Perez as the most important etiologic factor in ozena. ED.

200

Weakness of the Soft Palate and of the Tongue a Constant Symptom in Hemiplegia. P. DE LONG and T. H. WEISENBURG *Jour. A. M. A.*, Nov. 18, 1916.

1. In all hemiplegics in whom there is an involvement of the lower part of the face, there is also weakness of the soft palate. This can be seen with the mouth open, with the palate at rest and in phonation. When at rest the arch of the palate is flatter and broader than that on the normal side. In phonation the soft palate on the paralyzed side appears to give way and the arch of the palate goes back and toward the normal side.

2. In hemiplegics in whom the lower part of the face is involved, the tongue on the paralyzed side loses its elasticity, and is flabby to touch and pressure. When lying in its cavity, the posterior part especially appears to be thicker and not as wide in comparison to the normal side, this being especially brought out when the tongue is protruded. ED.

202

High Palate and Adenoids. W. LUBLINSKI, *Berliner klin. Woch.*, Jan. 24, 1916.

In cases in which removal of adenoids fails to bring about improvement in the child's condition and he continues to breathe through his mouth the author states that examination will reveal a high, narrow palate in place of the normal, low, broad one. The higher and steeper the palate, the narrower the nose and the higher its floor so that air through such a nose enters the nasopharynx with difficulty. Hence, the removal of adenoids when present which cause so much more occlusion of the nasopharynx will not entirely remedy the condition. ED.

226

Tonsillar Endamebiasis and Thyroid Disturbances. J. S. EVANS, W. S. MIDDLETON and A. J. SMITH, *Amer. Jour. Med. Sciences*, Feb., 1916.

The study is based on 362 goiter cases. Tonsillar lesions of an infective cryptic character were found in 22.8 per cent and nasal together with tonsillar lesions existed in 90 per cent. Analysis of these results shows primarily an extremely high proportion of positive findings of endamebae in the tonsillar crypts in goiter subjects having, as is fre-

quently the case, chronic hypertrophic tonsillitis; and secondarily the frequent coincidence under treatment with emetin hydrochloride of (a) disappearance of the amebae (with amelioration of the tonsillitis) and (b) of reduction in the size of the goiter and improvement in, or disappearance of, nervous and circulatory symptoms of dysthyroidism, directs attention to the question of reduction in the goiter mass. The authors do not believe that this effect (which was uniformly maintained over a period of a number of months) could be attributed to such a transitory action as vascular constriction from vasomotor influence. They believe that the reduction in the size of the goiter as well as the improvement in the dysthyroidic symptoms is the result of the removal by emetin of the amebae in the tonsillar crypts in these cases, this resulting in a breaking of an important symbiotic chain of endamebae and thyrotoxic bacteria and thereby removing from these foci the active elaboration of the directly influential toxins. ED.

242

A Study of the Physico-mechanical Function of the Faucial Tonsil. ELMER I. KENYON and W. T. KRADWELL, *Annals Otol., Rhinol. and Laryngol.*, Dec., 1916.

Their investigations lead the authors to the following summary and conclusions: 1. The tonsil serves as an absolutely necessary factor in providing a channel for the action of the palatoglossus muscle. 2. The function of the tonsil with reference to the palatoglossus is to afford support and protection to the normal action of this muscle. 3. Tonsillectomy serves to destroy not merely a possible lymphatic function of the tonsil but also to disturb or destroy an important physico-mechanical function. 4. More or less impairment of action of the depressor palatal muscles must occur in practically all cases following tonsillectomy, regardless of the delicacy of operative technique or method. ED.

250

The Occurrence of Abscess in the Lung After Tonsillectomy; Report of Nine Cases in Adults. MORRIS MANGES, *American Jour. Surg.*, March, 1916.

The author states that there is every reason to believe that post-tonsillectomy lung abscesses are much more frequent than the published cases would lead one to suppose. The nine cases reported by Dr. Manges occurred at Mt. Sinai Hospital, New York, and were all operated on by very competent men. The cause of these abscesses is probably aspiration of blood or tonsillar tissue at the time of operation. A second possible cause might be embolism from the open veins or from a septic thrombus in or near the field of operation. This embolic origin, the author states, is not very probable because such embolic abscesses always involve many areas in the lungs. The anesthesia itself is not a cause of lung abscess as bronchitis or pneumonia are the only lung complications after anesthesia. The author believes that the occurrence of lung abscess may be prevented by due care before, during and after the operation and that this complication never occurs in private patients. The latter statement is certainly fallacious as cases have occurred in private patients. ED.

252

Tonsillectomy. J. MATTHEWS, *Jour. Amer. Med. Assn.*, Feb. 12, 1916.

The author describes the method of tonsillectomy as used in the Mayo Clinic. The instruments used are a syringe with extension barrel and curved needle, the Robertson knife, Richards' forceps and Tyding's snare. The tonsils and their immediate vicinity are brushed with cocain, 10 per cent, and this is repeated in five minutes. After a like interval, a solution of cocain, 0.25 per cent, with one minim epinephrin per dram, is injected into the connective tissue about the capsule. When the patient pales from the effect of this the operation is begun. The tongue is depressed till the edge of the palatoglossus is prominent in the anterior pillar; just behind this pillar there appears a triangular depression whose other side is the tonsillar portion of the plica triangularis, and whose base is the root of the tongue. The point of the knife is placed in this depression and swept upward so as to cut the mucous membrane and enter the deeper tissues between the capsule and the anterior pillar. The incision is continued upward until the superior pole of the tonsil is reached. When the knife is turned slightly and brought down between the capsule and the posterior pillar. During the incision the tissues are not fixed by the forceps, the knife following accurately the line of least resistance. The cut is usually sufficient to free the superior pole so that it may be drawn inward and downward with the forceps. The capsule being put under tension, the fascia and muscle are pushed away from it with the flat surface of the knife. The process is continued till the whole surface of the capsule, including the insertion of the superior constrictor muscle, has been freed so that the tonsil is attached only at the lower aspect of the inferior pole. Then the snare is passed over the forceps and tonsil so that the free end of the loop engages the remaining attachment and the lymphoid tissue of the mucous membrane folds below it. This lymphoid tissue should be carefully removed, as it often contains crypts which may produce general infection. The blood vessels necessarily severed in this method are smaller than those in the fascia, which might be injured by a sharp instrument, but by the method described the flat surface of the knife is used and unnecessary hemorrhage usually avoided. ED.

255

Pyelocystitis and Metastatic Abscess Following Tonsillitis. H. B. MILLS and G. A. SOWELL, *New York Med. Jour.*, April 15, 1916.

The authors report a very interesting case of pyelocystitis and metastatic abscess of the left foot and left hand following an attack of tonsillitis. Pus from the abscesses showed a pure culture of staphylococcus albus. Blood culture also showed staphylococcus albus. ED.

260

The Dangers and Complications of Tonsillectomy. S. E. MOORE, *Medical Record*, Dec. 2, 1916.

In a very instructive and exhaustive paper upon this important subject, the author decries the note of enthusiasm which in its intensity temporarily overlooks the dangers and disadvantages incident to the method for the removal of the tonsils which is so popular at present. His personal interest was drawn to the dangers and complications of the opera-

tion in a patient who four days after having the tonsils enucleated with the Sluder-Ballenger instrument, suffered an attack of neuritis which became widespread, involving the nerves of the thighs, back, both forearms and arms, neck, feet and chest. He was forced to go to bed where he remained up to the time of the author's paper, seven months after the surgical treatment. The tonsils were successfully and completely removed under local anesthesia. The patient had had but one attack of tonsillitis in thirty years. Under microscopical examination, the removed tonsils showed no areas that could be interpreted as infective foci, and only a small amount of tonsillar tissue existed. The patient had suffered from an attack of polyneuritis five or six years previously, resulting from acute arsenical poisoning, but a complete recovery following a mild recurrence suggested the removal of the tonsils. The author has considered the subject in a very thorough manner, and his conclusions should be read with thoughtful consideration. His paper is a valuable contribution to the subject, and should be read and digested by many of our colleagues. M. D. LEDERMAN.

272

Tonsillectomies in Poliomyelitis. J. C. ROPER, *Long Island Med. Jour.*, Nov., 1916.

The author calls attention to the finding in the recent poliomyelitis epidemic in New York of a considerable group of cases in which there were localized foci of pus in the tonsils from which the typical organisms could be isolated. In these cases the progress of the disease seemed to be slow, with more or less fever, and at times late development of paralysis. On the strength of these findings the tonsils were removed from a group of cases not during the acute stage, but after the third week. Several of the patients thus operated on showed marked benefit. ED.

273

Etiology of Epidemic Poliomyelitis. E. C. ROSENOW, E. B. TOWNE and G. W. WHEELER, *Jour. A. M. A.*, Oct. 21, 1916.

The authors report the results of their bacteriological studies of throats, tonsils, blood, spinal fluid, central nervous system and other tissues in cases of acute poliomyelitis during the epidemic in Rochester, Minn., and in New York City. They isolated a peculiar polymorphous streptococcus, often in large numbers, from the throat, from material expressed from tonsils and from abscesses in tonsils of a large series of cases of epidemic poliomyelitis. In twelve consecutive cases they obtained the same organism from the brain and cord and the intervertebral ganglia, and in some of the cases, from the lymph nodes also. One of the striking characteristics of this organism is that with changes in its artificial medium it becomes transformed from a relatively large coccus to an extremely minute organism resembling the globoid bodies described by Flexner and Noguchi. Paralysis with lesions in the central nervous system has been produced in guinea-pigs, rabbits, dogs, cats and monkeys by intravenous or intracerebral injection, with this streptococcus from practically all of the 52 cases of acute poliomyelitis. Furthermore, it has been produced by injecting the emulsions of pus expressed from tonsils, emulsions of extirpated tonsils and emulsions of the brain, and also

by injection of the pure cultures from the throats, from material expressed from tonsils and from abscesses in tonsils removed from living patients and necropsy cases. ED.

276

The Question of Age in Tonsillectomy. THOMAS L. SHEARER, *Jour. Ophthalmol., Otol. and Laryngol.*, March, 1916.

The author offers the following suggestions: (1) If constitutional and other treatment can successfully maintain a fair condition of health in a child tonsillectomy should not be performed under the age of at least eight years. (2) Between the ages of eight and fourteen years if one can obtain positive evidence of local or systemic injury from the tonsils and if the tonsils do not yield to conservative treatment, enucleation should be carried out. (3) Not infrequently the removal of adenoids may afford such relief to the child as to obviate any immediate necessity for tonsillectomy. (4) Adenoids should not be removed in infants unless the child is unable to nurse on account of the nasal obstruction. (5) It should be made a routine practice in every child suffering from enlarged cervical glands that the teeth, peridontal spaces, adenoid region and nasal cavities be thoroughly explored before accusing the faucial tonsil of being the host of the infection. ED.

284

Epidemic of Severe Form of Acute Infection of the Throat with Abscess Formation. Report of 58 Operations. C. F. THEISEN, Trans. American Laryngological Assn., 1916.

The author's report deals with a total of 384 cases, fifty-eight of which required surgical measures. Forty-four were cases of peritonsillar abscess (38 unilateral, 6 bilateral) and of the remaining fourteen in eight the abscess developed in the lateral columns of the pharynx; two cases of infection of the epiglottis with great edema and some pus; two cases of abscess of the lingual tonsil and two cases of retropharyngeal abscess (the latter in children). In this series of fourteen cases there were no enlarged tonsils in ten cases, and in the other four healthy looking tonsils with no deep crypts. The author endorses Semon's opinion that "the various forms of acute septic inflammation of the throat and neck, hitherto considered as so many essentially different diseases, are in reality pathologically identical; that they merely represent degrees varying in virulence of one and the same process." In operating for peritonsillar abscess recommends dissection backwards until the capsule is reached and removing the upper lobe of the tonsil, thus leaving a large triangular opening for drainage. Patients so operated have done much better and recovered more quickly than those treated by the usual incisions. ED.

289

The Faucial Tonsils in Singers. Should We Remove Them? IRVING W. VOORHEES, *New York Med. Jour.*, Dec. 16, 1916.

The author's conclusions are as follows:

1. An analysis of 5,000 tonsil operations in singers shows that in the hands of skilled operators there need be no special fear of bad results.

2. It is the concensus that bad results are most often due to cicatricial contractions occurring from careless dissection or from neglected after-treatment.

3. Pain in the tonsillar region, neck, and larynx, is probably due to section of some of the larger branches of the glossopharyngeal nerve (Justus Matthews).

4. Loss of singing voice after tonsillectomy might be due to a nerve lesion, but is probably due to adhesions and cicatricial formations in the fauces.

5. Loss of singing voice occurs very rarely after tonsillectomy. Impaired voice is possible, but most cases show an increased range of from one-half to a full tone.

6. The singer's problem is a very special one, and no larynologist should undertake to operate on these patients unless he has some knowledge of the art of singing.

7. At operation the greatest care and skill must be exercised in securing a clean, free dissection. Injury to the tissues surrounding the tonsil may prove disastrous.

8. Postoperative care is of special importance. The patient should be seen daily until full healing occurs. ED.

291

Lung Suppuration After Tonsillectomy. H. WESSLER, *Interstate Med. Jour., Roentgenology Supplement*, Jan., 1916.

Wessler observed 28 cases of lung suppuration from all causes during the past year. Eight of these cases followed tonsillectomy. In six of the eight the right lung was affected. Six cases were cured spontaneously; in one an excision of the affected lobe had to be done; the other was unimproved. ED.

295

Cylindroma of the Tongue. R. H. BAKER, *Surg., Gyn. and Obst.*, Sept., 1916.

True cylindroma may be classified as an endothelioma cylindromatosum or angioma cylindromatosum, because the clinical history of such tumors combined with their microscopical structure tends to the view that the cylindroma is a tumor of endothelial origin. It is slow in growth, with frequent recurrences but lacking in metastasis. The two cases reported by the author are unique in their origin in the tongue. The conclusions to be drawn from these cases are: 1. That they arise from abnormal proliferation of blood and lymph capillaries and spaces. 2. That the endothelial lining of these capillaries and spaces gives rise to a secretion of some material with the staining reaction of connective tissue hyaline. 3. The hyaline substance may be distributed centrally or peripherally to the secreting cells. 4. The excessive proliferation of the vascular elements meeting the resistance of the firmer connective tissue framework and the increasing resistance of the hyaline material tends to assume a twisted convoluted structure. 5. The increasing tension within these convolutions from proliferation and excessive hyaline formation causes an impaired vascular supply to the tissue and ultimate necrosis of the endothelial cells and tends also to restrict the nutrition of the connective elements, with resulting sclerosis and hyaline degeneration. ED.

297

Tuberculosis of the Tongue. LUIGI DURANTE, *Annals Surgery*, Feb., 1916.

In the majority of cases tuberculosis of the tongue has a localization secondary to a tuberculous process in other parts of the organism. The anatomical forms which tuberculosis of the tongue may assume do not represent any distinct anatomical entity. But whatever be the final anatomico-clinical form the beginning is always characterized by specific connective tissue, new formation of tuberculous nodules, which may be localized separately in the dermis of the mucosa or in the lingual parenchyma. From this distinct initial localization of the tuberculous process may originate two clinically different types (1) as a grey plaque (somewhat like cutaneous lupus) elevated above the surrounding mucosa without inflammatory reaction, and hard to the touch; if these preserve the sclerotic form they are spoken of as *glossodermatitis tuberculo fibrosa*, and if they ulcerate, *glossodermatitis tuberculo-ulcerosa*. (2) As a nodular, confluent, or disseminated miliary tuberculosis. Diagnosis must depend largely upon microscopic examination of the excised tissue, for from the clinical characteristics lingual tuberculosis has frequently been confused with epithelioma and tertiary syphilis. The nodular form of intralingual tuberculosis, confluent or disseminated, is, in the early stages, quiet, not accompanied by enlargement of regional glands, without pain and is simulated most frequently by gumma. These, it should be noted have a predilection for the base of the tongue while tuberculosis elects the lip. The differentiation of tubercular ulcer from cancerous ulcer must depend very largely upon histobiologic examination because the clinical differential characteristics may be very confusing. ED.

299

Cancer of the Mouth and Tongue, with Special Reference to Metastases in the Neck. J. SHELTON HORSLEY, *Southern Med. Jour.*, June, 1916.

The paper is based on a series of eight cases of cancer involving the tongue or mucous membrane of the mouth. In one of these cases the point of origin seemed to be just beneath the mucous membrane in what was probably a dermoid growth in the submaxillary gland. In recurrent cases about the mouth and floor of the mouth where block dissection seemed to give but little hope, the Percy cautery was used. The results were very striking. Where the tissues are dense, the Percy cautery should first be applied for ten minutes, the tissue excised and the cautery again applied for at least thirty minutes to the raw surface left by the excision. In the selective zone which lies outside of the region of actual necrosis, cancer cells are destroyed by a degree of heat of about 115 degrees F., if maintained for twenty minutes, which will not destroy cells of normal tissue. Besides its actual destructive effect, the Percy cautery has the advantage of sealing the capillaries and of destroying cancer cells in a zone where normal cells are not affected. These destroyed cells may have the additional advantage of acting as an autogenous vaccine. Of Dr. Horsley's eight cases, three were (in November, 1916) in good health and without any signs of recurrence for periods of thirteen months, three years, and three years and three months, respectively. A fourth patient who is living had a recurrence for which he was operated upon and was (at the time of Dr. Horsley's writing) doing well and with some chance for permanent recovery. ED.

306

Abscess of the Tongue. J. PENN, *Boston Med. and Surg. Jour.*, Feb. 3, 1916.

Abscess of the tongue is rather a rare condition because of the vascularity of that organ. In making a diagnosis a number of factors should be taken into consideration. (1) A very early symptom is sore throat; (2) there is steadily increasing pain with its characteristic distribution to the tongue, neck, ear and temporal region; (3) temperature and flushing of the face; (4) enlargement of the tongue, difficulty in swallowing, opening the mouth and in articulation; (5) fluctuation cannot be made out; (6) the submaxillary glands are swollen and tender. ED.

309

Tuberculosis of the Tongue. J. R. SCOTT, *American Jour. Med. Sciences*, Sept., 1916.

The author has been able to collect 231 cases of tuberculosis of the tongue. The majority of the cases show the age of occurrence to be from forty to fifty years (the earliest reported age was 5½ years) and that males are more frequently affected than females. As regards etiology the author classifies the disease into primary and secondary forms, the secondary being more common, and that trauma is a very important factor especially in a patient suffering from pulmonary tuberculosis. The tissue may be directly inoculated by contact with bacilli laden sputum. However, in addition to direct inoculation, the infection may be carried to the part either by the blood or lymph streams. In his series of collected cases he was able to find only 26 undoubted cases of primary tuberculosis of the tongue. Tubercular ulcerations of the tongue are very indolent in their progress and quite resistant to treatment. In appearance the lesion is small, round, slightly elevated. The form of the nodules is frequently elevated, either round or oval, or irregular. They rapidly break down in the center and form ulcerated areas whose walls are generally abrupt and frequently undermined.

The differential diagnosis is often a matter of considerable difficulty; it should be made only after a microscopical examination of the material from the lesion. Simple ulcers of the tongue, local manifestations of syphilis and carcinoma, must be considered where microscopical differentiation is very difficult. A special staining method for demonstrating tubercle bacilli should be used, or a piece of tissue may be injected into a guinea pig.

The prognosis is dependent upon many factors aside from simple ulceration of the tongue. If taken in the earlier stages, and the patient is not suffering from pulmonary tuberculosis in the advanced stage, surgical removal of the diseased tissue of the tongue has resulted in an apparent cure; in other cases, the prognosis is very bad. According to von Ruck, however, when tuberculin is administered, the prognosis becomes fair.

At the present time, the majority of medical men use surgical treatment; where the lesion occupies the anterior portion of the tongue, it is now the practice to remove a V-shaped piece, going far beyond the limits of the actual lesion. Where the greater part of the tissue of the tongue is affected, it becomes necessary to amputate. Simple curettement is not advisable; the actual cautery is a better method of local conservative treatment. ED.

312

Glossopharyngeal Paralysis. MAURICE VERNET, *Paris Medical*, Dec. 23, 1916.

In glossopharyngeal paralysis there is difficulty in swallowing solid food because the superior constrictor muscle of the pharynx is innervated by this nerve. Another feature of paralysis of the superior constrictor is a curtain movement of the posterior wall of the pharynx from the affected side towards the sound side and there is disturbance in the sense of taste of the posterior portion of the tongue. ED.

326

Alveolar Necrosis. LUIGI ARNONE, *Annali di Odontologia*, Nov., 1916.

The author speaks of the difference between acute and chronic necrosis; while the former manifests itself with alarming symptoms and requires prompt and energetic treatment, the chronic alveolar necrosis generally does not give any pain and manifests itself when the sequestrum is already detached. This fact can be explained by the difference in the pathological process. The principal forms of aveolar necrosis are three: acute infective necrosis, syphilitic or tertiary necrosis, and distrophic necrosis, which always occurs in conjunction with injuries of the nerve. In acute infective necrosis the suppuration begins in the external side of the periosteum and advances inwardly. By the force of gravity and probably also because some little abscesses open on the internal side of the periosteum, the pus reaches the medullar substance, where the process becomes still more active and develops exclusively in the cells. The osteoblasts, being irritated, assume the function of osteoclasts and secrete a substance of acid reaction, which softens and destroys the lamellae of the bone, producing gradually a boundary line between the sound and diseased tissue. The relatively large size which sometimes the sequestrum reaches, can be explained by the spreading of the septic process about the walls of the nutritive arterioles, their consecutive obstruction, and consequently the lack of nutrition of a region of bone.

The syphilitic or tertiary necrosis begins on the contrary with an arteritis. Gradually the vessel is occluded, the dependent region is no more nourished and the bone falls in necrosis; but the whole process has a very slow course and does not cause any pain. When the sequestrum is detached, the presence of a prominent point, which hurts the soft tissue can be noticed, or if the patient wears a dental plate he can feel it unusually loose. The neuralgic necrosis occurs after a very rebellious neuralgia of the trigeminal branches. In such cases very large sequestrum may become detached, without causing any pain and followed by prompt recovery of the gum.

The author suggests that in cases of fistulae of the gum of very slow course, with fever and other severe symptoms, it is to be thought that the process may have reached, besides the periosteum, also the bone, causing the detachment of some sequestra. ED.

334

Displacement of Fragments in Unilateral Mandibular Fractures with Loss of Substance. A. BERETTA, *Annali di Odontologia*, Nov., 1916.

From observations covering numerous cases of lateral mandibular fractures with loss of substance the author has found that the longer frag-

ment is pulled backward and downward and is projected laterally toward the region of the fracture. The smaller fragment, on the contrary, is pulled forward, upward and toward the median line, it is never situated outside the greater fragment but always on its lingual side. ED.

335

Injuries of the Jaw Bones Caused by War. G. BERSANI, *Annali di Odontologia*, Nov., 1916.

The author points out that the dentist should co-operate with the surgeon in the treatment of these injuries. To prevent infection the author employs irrigations of physiological salt solution. He advises to keep in place the bony fragments and the teeth, even if they are very loose, provided that they are not completely detached, because most of them can again become attached and firm. The wounds of the soft parts are not to be sutured but simply treated with aseptic dry dressing. Wounds of the upper jaw are always less severe than those of the mandible and their treatment is easier even if they are complicated with injuries of the antrum. In the treatment of jaw fractures it is of capital importance that fragments be replaced in normal position and this is obtained by placing the remaining teeth in normal occlusion. Constriction of jaws often occurs in cases of injuries of the mandible; it can be prevented or treated by active movements of the mandible and frequent massage. Ligature of fragments for retention is not advised by the author. Interdental metallic ligatures have been employed by him only in cases with displacement of fragments. ED.

339

Treatment of Tuberculous Adenitis by Roentgen Rays. R. H. BOOGS, *New York Med. Jour.*, May 27, 1916.

Operation is followed by frequent recurrence and there is great danger of producing general tuberculosis. The end results of radiotherapy are much better. The same massive radiation is not indicated in tuberculous adenitis as in malignant disease. Roentgenization is the best method of treatment when the glands have become widely scattered and are broken down and where there is pulmonary involvement the author believes that the Roentgen ray together with hygienic treatment is the only method to be taken into consideration. ED.

340

Treatment of Leukoplakia by Radium. RUSSEL H. BOGGS, *Texas Med. Jour.*, Nov., 1916.

Without denying the great frequency of tertiary syphilis of the month and its possible transformation into cancer, there is no question of the existence of non-syphilitic leukoplakia, chronic from the outset, followed by epitheliomatous degeneration. It differs from the syphilitic lesion. Syphilitic leukoplakia is accompanied by induration, fissures and later scarring and white fibrous tracts and the diagnosis may be confirmed by the Wassermann. The results of the radium treatment have been so satisfactory in the author's experience that he is treating with this method all cases of idiopathic leukoplakia as well as some cases of syphilitic leukoplakia. The latter have not responded so well as the former but even in the luetic tybe better results are obtained than with

any other form of treatment. The author believes that in many instances we have an epithelioma situated in luetic tissue which will not respond to one form of treatment alone. In the treatment of leukoplakia the best results are obtained by the rays of slow penetration as it is necessary to have a reaction deeper than one or two millimeters. Using a tube containing 25 milligrams of radium an exposure of one to two hours is usually sufficient for each lesion, depending upon its stage and extent. On the tongue, on account of the papillae, a somewhat larger dose is required than on the buccal mucous membrane. As a filter the author uses one-half millimeter of silver, several layers of gauze and a finger cot. This allows a large amount of the Beta rays to be used in the treatment. ED.

349

Primary Syphilis of the Gums. ACHILLE BREDA, *Giorn. ital. delle Mal. ven. e delle Pelle, Jan.*, 1916.

Breda records three cases where primary sores occurred on the gums. As that situation is rarer on the lips and tongue, he gives a full report of the differential diagnosis. The sore was situated on the anterior aspect of the gums, painless, of rapid growth, and accompanied by the usual glandular enlargement and subsequent rash. The object in reporting the cases is to draw attention to the differential diagnosis. It has to be distinguished from a swelling due to periostitis of the bone from injury, erectile tumors, cystic growths, osteoma, enchondroma, carcinoma, sarcoma, and fibroma. The accompanying enlargement of glands also leads to confusion with new growths. The syphilitic lesion can be diagnosed by its history of short duration, and the fact that it is localized to the mucous membrane. It occurs more on the anterior than the posterior surface of the gum opposite the front teeth. It is not usually large, is sharply defined, and of semilunar outline. Elevated, pedunculated, lobulated, or massive swellings are not likely to be syphilitic. ED.

355

Entameba Buccalis. A. CHIAVARO, *Annali di Odontologia*, Sept., 1916.

The author publishes the results of his researches upon the *entameba buccalis* and points out that the entameba described by Prowazek is probably identical with *ameba gingivalis* of Gross (1849), with the *entameba buccalis* of Steinberg (1862), the *ameba dentalis* of Grassi (1879) and the ameba found by Flexner in a mandibular abscess and described in 1892. The fact that these investigators never found the *entameba buccalis* in a state of encystment left the suspicion that it was not an independent form but rather a stage of development of some of the entamebae, which are found as intestinal parasites. The author's researches were directed to studying the morphologic characters of the *entameba buccalis*, deducting therefrom as to the independent form of the entameba, to observing the relationship between the presence of the entameba and the conditions of the oral cavity and solving the question of its pathogenicity. His conclusions, based on a study of 68 cases, are: (1) the *entameba buccalis* is an independent form; (2) it is found in every case of alveolodental pyorrhea and generally in soft deposits of teeth, sound or not, which are kept in good hygienic condition; (3) it is absent in dental cavities in which the pathological process of decay is actually going on,

and therefore represents an acid medium, and it is also present in hard tartar; (4) the *entameba buccalis* has no pathogenic action; on the contrary, as it feeds on bacteria, it is probably an adjuvant in the auto-disinfection of the mouth. ED.

373

Treatment of Vincents' Angina and Stomatitis with Silver Nitrate and Methylene Blue. M. FAVRE and H. DREYFOUSS, *Presse med.*, No. 61, Nov. 2, 1916.

Although the treatment with organic arsenical preparations such as neosalvarsan and galyl is recognized as specific the authors find a combination of silver nitrate and methylene blue treatment equally efficacious. The ulcerations are very carefully cleansed every day with swabs of cotton previously dipped in a 10 per cent silver nitrate solution. Especially the bases of the ulcers must be made clean. The silver nitrate is then followed by the free application of a one per cent methylene blue solution. Disappearance of the more superficial lesions was procured in three days and of extensive tonsillar ulcerations in eight days. Treatment should be continued until complete recovery takes place, in the later treatments a 1.30 silver nitrate solution being sufficient. ,ED.

380

Non-Diabetic Acidosis, with Special Reference to Postoperative Acidosis in Children. IRA FRANK, *Annals Otol., Rhinol. and Laryngol.*, Dec., 1916.

The points emphasized by Frank are that acetone is found in the postoperative urine of practically all children. This acetonuria produces no symptoms in the great majority of cases. Varying degrees of acidosis or symptom-producing acetonuria follow anesthesia in about 20 per cent of cases in children, in individuals predisposed by chronic infections, age, etc. The symptoms of acidosis are such that three degrees of severity are apparent, viz: subacidosis—acetonuria and rapid pulse; acidosis—acetonuria, diacetic acid in the urine in small amounts, rapid pulse, drowsiness, rapid, shallow respiration; acid intoxication. Acidosis may be prevented or its degree lessened by a carbohydrate diet preceding the operation, by shortening as much as possible the starvation preparation, by the use of nitrous oxide or short ether anesthesia and by the use of further carbohydrate diet as soon as the patient is in proper condition following operation. Postoperative acidosis in any stage readily responds to solutions of glucose administered by mouth or by rectum, or in very severe cases intravenously, with sodium bicarbonate as a possibly valuable adjuvant. , ED.

387

Ulcerative Stomatitis. K. GOADBY, *Lancet*, May 6, 1916.

The author reports on his bacteriological investigations in ulcerative stomatitis cases among the troops in France and in England. Smears made from the gums, cheeks or throat and stained by Giemsa's stain showed two morphologic types of bacteria: (1) bacillus fusiformis and (2) spirochetes. Both of these organisms were gram negative. The fusiform bacilli are 6 to 7 microns in length and resemble the diphtheria bacillus except that they are longer and larger and slightly curved. The spirillum resembles the spirillum of relapsing fever but lacks the characteristic "screw" form of the pallida. In hanging preparations from the tissue it is not motile. It is an obligatory anaerobe and serophile. ED.

400

Diagnosis and Treatment of Vincents' Angina; Report of a Case Involving the Lungs. T. P. HINMAN, *Dental Cosmos*, Dec., 1916.

The author is of the opinion that the finding of Vincent's spirochete together with the fusiform bacilli, is sufficient to make the diagnosis. Clinically, the disease is an ulcero-membranous condition usually beginning in the cul-de-sac posterior to the last molar. Where the gums are primarily involved the tonsils are affected secondarily, and vice versa.

ED.

421

Further Observations on the Connellan-King Diplococcus Throat Infections; Their Sequelae with Special Reference to Arthritis. J. J. KING, *Trans. Amer. Med. Assn., Sec. Laryngol., Otol. and Rhinol.*, June, 1916.

Four cases are described and these show:

1. The frequent presence of the Connellan-King diplococcus in the crypts of the tonsils or at the roots of the teeth in arthritic patients suggests that it may be specific, and that a simple tonsilitis may be followed by very serious complications, due to an absorption of chemical toxins.

2. The danger of a general sepsis following tonsillectomy might be eliminated if a culture were taken from each patient.

3. If the focus of infection in arthritis exists in the tonsil, the treatment should consist in the injection of an autogenous vaccine until all infection is cleared up and then the tonsils should be removed by enucleation.

4. The blood changes in the Connellan-King diplococcus infections seem to be a simple anemia and, in a few cases, a slight increase in the eosinophils from 4 to 6 per cent.

5. In some cases symptoms other than those for which treatment was instituted have disappeared. For instance, in one patient with arthritis and marked ethmoiditis the culture was obtained from the throat. Within two weeks the ethmoiditis had cleared up, while the arthritis was only slightly relieved. Another patient with serious gastric disturbance, who had found it necessary to remain on a strict diet, was able to eat almost anything after she had received the treatment with the autogenous vaccine.

ED.

437

Researches Upon Alveolo-Dental Pyorrhea. JOSEPH MENDEL, *Annali di Odontologia*, Sept., 1916.

In view of the conflicting views as to etiologic role of the *entameba buccalis* in pyorrhea the author undertook a series of investigations on (1) the morphology of the amebae; (2) the presence of the amebae: a) in alveolo-dental pyorrhea; b) outside of pyorrheal conditions; c) in acute and chronic suppurations of dental origin (aveolo-dental abscesses); d) in the acute suppurations of gingival origin; e) in acute gingivostomatitis; f) in the acute and chronic accidents provoked by the eruption of the third molar; g) in dental caries; (3) the effect of emetine hydrochloride in pyorrhea. The results of these studies are condensed in the following conclusions: I. The presence of *entamebae* in the mouth of man is not at all an exclusive characteristic of alveolo-dental pyorrhea.

II. The *entamebae* are found in almost every case of alveolo-dental pyorrhea. III. The *entamebae* are always present in the caseous material which coats the teeth. IV. In clean mouths *entamebae* are present in almost half of the cases. V. In all cases of various acute infectious conditions ordinarily observed in the mouth *entamebae* were invariably absent. On the contrary, their presence was frequently observed in chronic conditions. The presence of *entamebae* in the mouth seems not to have any influence in the evolution of dental decay. VI. The treatment of alveolo-dental pyorrhea by emetine either by instillation in the suppurating pockets or by intra-gingival injection, was found inefficacious in every case experimented on by the author. VII. Oral hygiene is the most valuable means, if not for the complete exclusion of *entamebae*, at least for reducing their number. ED.

453

Pseudotuberculoma Silicoticum of the Lip. C. R. NITCH, *British Med. Jour.*, Dec. 16, 1916.

A man, 39 years old, had fallen from a bicycle in 1905, cutting his nose and mucous membrane on the buccal aspect of the lower lip. He distinctively remembers spitting out blood and sand after he picked himself up. He used a mouth wash and healing took place in about fourteen days. The resulting scar, though somewhat thickened, underwent no change until 1916 (when he came under the author's notice), when a swelling began to form in the center of the scar. Four months after this swelling made its appearance the submental glands became enlarged and tender. Palpation of the tumor conveyed an impression similar to that given by a preputial chancre. Tumor together with the mucous membrane covering it was removed. Microscopic examination showed that the lesion consisted of a mosaic giant-celled systems and huge giant cells hardly to be distinguished from those of tuberculosis, though no caseation was present. No tubercle bacilli or other bacteria were discoverable. In practically all the giant cells, however, and elsewhere, there were particles of silica which stood brilliantly out when the sections were polarized. Hence the name *pseudotuberculoma silicoticum*. ED.

457

Treatment of Malignant Disease About the Mouth by Combined Methods. GEORGE E. PFAHLER, *Jour. A. M. A.*, NOV. 18, 1916.

1. The cases forming the basis of this report (Epithelioma of the dorsen of the tongue, 6 cases; epithelioma under the tongue and involving flow of the mouth, 6 cases; epithelioma of the cheek without palpable glands, 3 cases, involving the gums, jaw-bone and submaxillary gland, 9 cases; epithelioma of the tonsil, 4 cases) excepting those involving the lower lip, were almost entirely inoperable, and therefore every success is a distinct advance and every failure only a loss of time, energy and effort.

2. Any lesion about the mouth which does not show a tendency to heal within a few weeks should be looked on with suspicion of being malignant, and in case of doubt should be destroyed or removed.

3. Early lesions about the mouth can be destroyed by electrothermic coagulation with less loss of tissue, and more success than by any other means.

4. Deep roentgenotherapy should be added to any other method of destruction or removal of malignant disease.

5. Combined treatment by surgery, electrothermic coagulation, radium and deep roentgenotherapy will cure some patients who are otherwise hopeless. ED.

461

Treatment of Ulcerative Sore Throat and Stomatitis. F. RAMOND, *Progres Medical*, No. 24, Dec. 20, 1916.

The patient gargles first with a one per cent solution of cocain. If there is slight hemorrhage this can be arrested by gargling with a solution of hydrogen peroxide. The ulcer is then dried with cotton and touched with a weak solution of silver nitrate. This treatment should be repeated daily for several days. ED.

499

Diathermia in the Treatment of Trifacial Neuralgia. H. F. WOLF, *Medical Record*, Dec. 30, 1916.

The author advises trying diathermia before other methods are tried, such as alcohol injections or ganglion resection. He prefers to apply the electrodes in such a way that the ganglion is between them (one electrode at the back of the neck and the other over the eye which should be protected by cotton pad moistened with saline solution). The strength of current should be about 700 milliamperes. The duration of each treatment should be from one-half to one hour. ED.

510

Cholesteatoma Removed From the Frontal Sinus. A. HAEGGSTROM, *Oto-Laryngologiska Meddelanden*, Bd. 2, H. 2, Aug., 1916.

Patient, 39 years old, noticed that his right eye was gradually becoming displaced accompanied at times by headache on the affected side. No disturbance of vision. The trouble proved to be a cholesteatoma of the frontal sinus with enlargement of the walls of the sinus and their destruction on the side of the brain and orbit. Successful removal of the growth by incision in the brow. ED.

512

Intranasal Surgery for Relief of Chronic Frontal Sinusitis. LEE M. HURD, *Jour. Amer. Med. Assn.*, Dec. 16, 1916.

One of the disadvantages of the present internal methods is the uncertainty of results and the constriction of the drainage passage into the nose which nearly always occurs a few weeks after operation. With the internal methods there are more accidents than when the sinus is opened externally. The indications for intranasal operations are all cases of chronic sinusitis without complications. Contra-indications are intracranial and orbital disorders and fistulas, all of which should be approached by the external route. The author describes his method of operation. For after-treatment he applies bismuth paste, douches with aqueous solutions and applications of silver nitrate and sodium chloride. He does not favor douches with antiseptic solutions. The bismuth paste has given him very good results, reducing the discharge and swelling. ED.

523

Surgical Observations of Chronic Frontal Sinusitis and its Complications. D. A. VANDERHOOF, *Colorado Medicine*, Nov., 1916.

Transillumination is of little diagnostic importance in frontal sinusitis. The x-ray may not always show a diseased sinus but it does show the shape and size of the sinus. A radiograph should always be made before undertaking a frontal sinus operation. In chronic conditions of the frontal sinus it is necessary to make sure that all diseased ethmoid cells are removed before doing any work on the frontal. ED.

526

The Accurate Radiography of the Pituitary Fossa and of the Sphenoidal Sinuses. H. TREVELYAN GEORGE, *Jour. Radiol. and Electrology*, Dec., 1916.

George describes a device for making certain that the median sagittal plane of the head shall be perpendicular to the vertical line drawn through the focal point on the antikathode. In the ordinary lateral view of the head great accuracy of focus is not required but in radiography of the pituitary fossa and of the sphenoidal sinuses a true lateral view is essential. George's method is a modification of Finzi's method of placing the head by means of coins over the external auditory meatus. Instead of using coins (the lower coin may give a larger shadow than the upper) he uses a lead ring made by describing two concentric circles on a piece of thick sheet lead and cutting away the superfluous lead. The diameter of the outer circle should be 20 mm. and that of the inner circle 14 mm. The thickness of the lead should be 1½ mm. Instead of the upper coin a circular lead disc 7 mm. in diameter is used.

Assuming the x-ray tube to be situated under the table, the lead ring is placed in the lower auricle, the compound disc in the upper auricle, and both fixed in their places if necessary by strapping. The head is then placed "by eye" in an approximately lateral position and screened. In general, the two shadows will not be concentric. The head is then manipulated until the shadow of the disc is seen to be in the center of the transparent area bounded externally by the shadow of the lead ring.

We now have a true lateral view of the head, and we also know that the vertical ray from the focal point of the anticathode passes through a definite point in each ear which is very near to the center of the external auditory meatus.

The radiography of the pituitary fossa is then proceeded with in the usual manner by moving the tube 3 cm. forwards and 2½ cm. upwards, or if the sphenoidal sinuses are to be taken, by moving the tube 3 cm. and 1 cm., respectively.

George states that a great advantage of the method is that one can always check whether the manipulations have been carried out correctly. A straight line joining the centers of the ring and disc should pass through the center of the pituitary fossa. ED.

535

Technique of Sphenoidal Sinus Exploration for Meningococcal and Other Infections. P. WATSON-WILLIAMS, *Bristol Med.-Chir. Jour.*, V. xxxiv, 1916.

The author advises routine exploration of these sinuses in all cases in which the meningococcus has been found in the cerebrospinal fluid re-

moved by lumbar puncture and in those in which the organism has been found in the nasopharynx. The sinuses may be explored by passing a cannula through the natural ostium or through the thin anterior wall. The latter method is preferred by the author because it is hardly possible to pass a cannula into the sinus without previously or subsequently contaminating it while passing through the narrow olfactory fissure so that the culture obtained may be misleading and as the cannula fills the ostium neither air nor fluid can enter or escape and no contents can be withdrawn as there is no "bung hole."

In gaining entry through the anterior wall, the author uses a blunt trocar and cannula, directing it upward and backward so as to aim about one inch behind the center of the back of the eyeball. On reaching the anterior face of the anterior sinus wall, the proximal end of the cannula is raised and the distal end pressed into the sinus.

Having previously drawn about 6 ccm. of sterile water into the suction syringe, the syringe nozzle is inverted into the cannula and about 3 ccm. of water is thrown into the sinus and at once slowly withdrawn. The purpose of the water is to dilute thick pus or mucus which could not otherwise be aspirated. ED.

538

Carcinoma of the Ethmoid Treated with Mesothorium. CLINTON C. COLLIER, *Jour. Ophthal., Otol. and Laryngol.*, Oct., 1916.

Patient a woman 50 years old. Operation followed by recurrence. One hundred mg. mesothorium applied for 24 hours. Two other exposures for equal length of time. Due to insufficient filtration of the rays, reaction very severe. Ultimate recovery. The author cautions against the use of mesothorium and radium except in expert hands. The filters should be of heavy silver and the mucous surfaces should be protected from secondary rays by rubber tissue. ED.

540

Empyema of the Ethmoid Cells. GEORGE F. COTT, *Jour. Amer. Med. Assn.*, Dec. 16, 1916.

The symptoms of a typical acute case are the clogging of the nasal passages, pain intensified by jar, often felt above the cells or on top of the head, with dizziness and vomiting, prostration and delirium. It lasts until the discharge begins, when it becomes markedly lessened and intermittent. In four or five days, only the discharge remains, and continues a week or two longer. The recovery, however, is not complete, and in many cases the sinus remains sensitive for years. In chronic empyema the mucosa becomes thickened by fibrous tissue, and there is a tendency to the occlusion of the ostium swelling of the membrane. The most troublesome symptom is usually discharge with spitting, dry secretion in the pharynx and sometimes crust formation in the nose. The discharge may last for years or the patients may never entirely recover. The after-symptoms cause the patient to call on the rhinologist. There are headaches over the bridge of the nose, over the eyes or forehead or on top of the head or at the base of the brain, scotoma, inability to read but a few minutes, complaint of hay-fever all the time, hacking and spitting during cold weather, inability to concentrate attention, and finally neurasthenia. The pain descends toward the shoulder or follows the course

of some nerve branch remote from the seat of the disease. Other symptoms like malaise, etc., may occur, and a cough without raising anything for several weeks recurring once or twice during the year. In this condition, which he calls latent ethmoiditis, the sensory nerves show their irritability, and in many patients vitality is lowered and the heart sounds are weak. Occasionally puncturing the anterior cells will give relief of pain. Palliative treatment with cocain, epinephrin and sprays or washes seldom give full relief. These cases seldom terminate fatally, but suffering is sometimes almost unbearable. Several cases are briefly reported or referred to. Cott has never seen caries occur except in syphilis. He has seen epilepsy twice, and in two cases asthma of recent origin, all relieved by the ethmoid operation, one epileptic permanently. ED.

543

The Oblique Method of Roentgenography of the Ethmoid and Sphenoid Cells. SAMUEL IGLAUER, *Jour. Amer. Med. Assn.*, Dec. 23, 1916.

Roentgenography of the accessory cavities of the nose by the usual technique is unsatisfactory especially of the ethmoid and sphenoid cells because of the fact that these lie in a row vertical to the plate and overlapping thus takes place. The oblique method of Rhese is the most valuable for the study of ethmoid and sphenoid disease. The patient lies on his side on the table with his face in contact with the photographic plate so that the head is in contact at three points, the malar eminence, the outer edge of the supraorbital margin and the tip of the nose. The central rays go through the upper edge of the auricle and are thus directed obliquely through the head but vertically on the plate. However, for purposes of comparison a plate must be made of each side. Iglauer points out that there are certain landmarks to guide one in the interpretation of the roentgenograms and that the chief advantage of the oblique method lies in the ability to detect anterior or posterior ethmoid or sphenoid disease. ED.

550

Surgery of the Ethmoid. G. E. SHAMBAUGH, *Jour. Amer. Med. Assn.*, Dec. 23, 1916.

Certain constant anatomic points have to be considered in all cases of its surgery. The first is to keep in mind the openings of the ethmoid cells into the nose. The second important anatomic point is the relation of the ethmoid to the orbit, and a third which has an important surgical bearing is the relation between the ethmoid cells and the brain fossa. There are also certain anatomic variations which may occur that must be remembered when working in this region. One of these is the development of ethmoid cells outside the usual limits of the labyrinth and another variation is the development of an ethmoid cell in the unciform process which is not quite as frequent, though in both cases the cell formed may be large. Operations on the concha media are undertaken for different conditions, some having to do with pathologic conditions outside the ethmoid, such as disease in the frontal and maxillary sinuses. Resection of the concha media, laying open the middle meatus, is often the simplest way to relieve obstruction causing retention in the resection of that part of the nasal wall of the maxillary sinus lying in the middle meatus, and in securing adequate drainage for acute or chronic empyema

of the frontal sinus. The conditions in the ethmoid itself mentioned as calling for the resection of the concha media include cases in which the middle turbinate is wedged so tightly between the septum and the outer wall of the nose that it impairs the normal ventilation of the anterior ethmoid cells, and it is also undertaken to relieve obstruction due to a bullous enlargement of the concha media itself. Where the resection of the concha media is indicated the operation is sometimes more difficult to carry out, and Shambaugh describes an operation which he has used of late years and which was devised by Andrews. He has found it feasible to remove the middle turbinate in the most difficult cases. The exenteration of a part of the ethmoid labyrinth is undertaken chiefly in the effort to secure better drainage for the frontal sinus infections, while a complete exenteration is done chiefly for the relief of two pathologic conditions; one the diffuse hyperthrophic ethmoiditis and the other the chronic purulent ethmoiditis. It is described in detail. ED.

554

Maxillary Sinusitis in the European War. DR. GEORGES CANUYT, *Revue de Laryngologie, D'Otologie et de Rhinologie*, Jan. 31, 1916.

The radiograph shows clearly the position of the projectile, therefore, whenever possible, it should be used, as it enables us to see the projectile from different angles and locate its position exactly.

The author has had excellent results with a special method of producing anesthesia in this region. He prefers novocaine (1 to 200) to which adrenalin solution has been added. Anesthesia is obtained by injecting the trunk of the superior maxillary by way of the orbit. The point of etnrance lies at the intersection of a line drawn from the superior border of the zygomatic arch and a line along the orbit or at the external angle of the orbit. The needle follows the floor of the orbit, pointing downwards and backwards towards the orbital fissure until the sudden loss of resistance is felt. The needle is held horizontally, the head being erect so as to avoid entering the subtemporal fossa through the inferior fissure.

The nerve is reached after the needle has penetrated a distance of five centimeters. A successful injection is followed by complete anesthesia of the areas suplied by the superior maxillary nerve. The corresponding part of the face also becomes blanched from the action of the adrenalin. The injection is sometimes followed by haematoma of the orbit, which, however, is soon absorbed.

Theoretically this method of anesthesia through the orbital route should be sufficient, but as an additional precaution, the author injects five cubic centimeters at the exit of the infra-orbital nerve and five cubic centimeters into the canine fossa and finally anesthetizing the nostril with a ten per cent cocain adrenalin solution. W. SCHEPPEGRELL.

563

Relation of the Teeth to the Maxillary Sinus. ROBERT H. IVY, *Jour. Ophthal., Otol. and Laryngol.*, Jan., 1916.

Conclusions: 1. The possibility of infection from a dental source should never be ignored in a case of maxillary sinus disease. 2. The tooth roots in direct relation with the floor of the antrum of Highmore may be affected with apical disease in the absence of all ordinary symp-

toms and signs, the disease being only demonstrable by the x-ray. 3. The antrum is more frequently opened during the extraction of certain teeth than is generally supposed, there being a local absorption of the floor by the dental disease. 4. Considerable difficulty is sometimes experienced in differentiating the x-ray shadow of the maxillary sinus from the outlines of pathological cavities such as cysts and abscesses. ED.

572

Surgical Treatment of Chronic Maxillary Sinusitis. W. E. SAUER, *Jour. Amer. Med. Assn.*, Dec. 30, 1916.

The necessary requirements of a good operative procedure are a large opening or openings of sufficient size to permit thorough inspection and good drainage with the least disturbance of nasal function. This, he believes, can be accomplished by a modified Canfield, such as the Skillern method, or a Denker operation in which the inferior turbinate is left intact. The most important consideration in judging as to the necessity of a radical operation is that of the primary or secondary character of the maxillary sinus involvement. The claim of Jansen that if one sinus is infected all are is not tenable. When, however, the antrum is a reservoir of frontal or ethmoid suppuration to which it is secondary, and the trouble is not of too lond standing, it is frequently necessary to cure only the primary trouble and then, at most, to treat the maxillary by lavage. Failure of the radical maxillary operation is frequently due to oversight of such lesions as decayed teeth or necrotic bone, as well as to pathologic conditions in the nose, etc. The value of the Roentgen ray in detecting these conditions cannot be overestimated. Systemic infections, like syphilis and tuberculosis also, here as elsewhere, must not be overlooked. ED.

588

Roentgenography in the Diagnosis of Suppuration in the Accessory Nasal Sinuses. R. GORDING, *Nordisk Tidskrift f. Oto-Rhino-Laryngol.*, Bd 1, H. 1, 1916.

Roentgenography is of greatest importance in frontal sinusitis and in the discovery of involvement of more than one sinus. It is also valuable in demonstrating the presence or absence of asymmetry in the sinuses. The sphenoid sinus is the only one that is not shown up by sagittal Roentgenography and even the radiogram taken from the side is not reliable because of the fact that the shadows of the two cavities are superimposed one on the other. When septa are present and the front wall is thick the picture may give a dark shadow even though the sinus is not diseased. The paper is illustrated with 21 photographs of healthy and diseased sinuses. ED.

590

Sinusitis from War Wounds. GUISEZ and OUDOT, *Presse Medicale*, March 23, 1916.

The report deals with 48 cases of accessory sinus inflammation, all resulting from wounds sustained in the war. Of these cases the distribution was as follows: Maxillary sinus, 38 cases; frontal and ethmoidal sinuses, 8 cases; ethmoidal sinuses alone, 5 cases. From the authors' experiences it would seem that the presence of a missile in the sinus (maxillary) had no direct influence on the development of sinusitis. In

many instances of maxillary sinusitis the bullet or fragment of shell had entered through the mouth and submaxillary region. Sometimes a severe local contusion or superficial wound was sufficient to set up a sinusitis, even without the penetration of the bullet into the antrum. In some cases the amount of bone destruction and laceration of tissue and vessels was extensive, necessitating the ligation of the carotid or packing of venous sinuses. Treatment consisted of removal of the foreign body and in maxillary sinusitis the Luc operation was performed, the canine opening into the antrum being left partly open to permit of observation and treatment with silute tincture of iodine. ED.

604

A Case of Pansinusitis Complicated with Acute Suppurative Appendicitis and Acute Mastoiditis. JOS. E. SHEEHAN, *Medical Record*, Oct. 7, 1916.

This unusual case occurred in a young woman 26 years of age. She complained of a chronic nasal discharge for more than two years, with the usual head symptoms and a loss of eighteen pounds in weight in a year. All tests as to specific and tubercular disease were negative. After operation upon the nasal and frontal sinuses the appendix became infected, and ten days later the mastoid showed symptoms of invasion. Both regions were treated surgically, and the mastoid cavity revealed a perisinus abscess. A combined vaccine assisted in the recovery of the patient. M. D. LEDERMAN.

609

Malignant Disease of the Nose and Accessory Sinuses. SIR ST. CLAIR THOMSON, *Lancet*, May 13, 1916.

Two cases are reported, one of endothelioma of the ethmoid and antrum (no recurrence after five and one-half years), the other, epithelioma of left maxillary and antrum. The subjective symptoms were slight and recent; grumbling pain in the cheek for two months. In the Moure operation two facial incisions were made instead of the single one now recommended. Alarming symptoms, suspicion of serous meningitis, followed the operation, but subsided in a few days. The growth was a squamous-cell carcinoma and although it had broken through the canine fossa and the antro-nasal wall, there has been no recurrence after four years. The absence of disfigurement and the comfort of the patient, especially when compared with the operations formerly employed in general surgery, are remarkable. There is no trouble in the way of atrophic rhinitis, in spite of turbinal removal, and there is no epiphora.

The author makes a plea for the performance of the Moure operation or lateral rhinotomy for malignant tumors originating in the antronasal wall, the roof of the nose, in the antrum, or in the sphenoid. The advantages claimed for this procedure are:

1. In all cases there is no mutilation or disfigurement. 2. Patients will readily consent to the operation. 3. They are left with an intact roof of the mouth and no troublesome obturator is required as in the old operation of excision of the upper jaw. 4. It is much easier after a Mouer operation to keep a direct lookout in the nose and its accessory cavities for any suspicion of recurrence. 5. Recurrences are more

easily dealt with, either through the nasal orifice, or by repeating the lateral rhinotomy, and patients are less likely to object to this than to a further facial disfigurement. 6. It can be extended to meet the variable conditions met with, or may be combined with other operative steps; for instance, if it is found that the disease has deeply invaded the orbit this cavity can be cleared out through the same incision, preserving the lower eyelid, sacrificing the eye if necessary. The nasal septum can be removed if the growth has attacked it. The antrum might be further dealt with by an incision through the canine fossa, but the access to the antrum obtained by a Moure operation cannot be improved upon. This may also be combined with the Denker operation. If the floor of the nose is found to be invaded the addition of a Rouge operation can be made. 7. Externally the car within a few months is so slight as to be almost invisible. 8. Hæmorrhage can be well controlled. 9. The front wall of the sphenoid is brought so well into the field that it is hardly one inch from the surface. ED.

621

Unusual Case of Speech Inhibition. S. BLANTON, *Jour. Abnormal Psychology*, Dec., 1916.

The case reported was one of psychoneurosis due to mental conflict. It was an accentuation of fear and timidity. The boy's vocal cords and hearing were normal. At home he talked in a good loud tone when he was playing with his brothers. However, when on the playground with other children, he would not speak, even when playing games. At home, he speaks much less than do his brothers. He seems to try to avoid speaking. For example, if he desires something at the table, instead of asking for it, he gets it himself. However, he sometimes sings after he has gone to bed, and then his voice is full-toned and pleasant. He appeared to be suffering from mental conflict resulting in an inhibition of his speech. Blanton points out that this case shows that parents and teachers should not neglect to take notice of cases of excessive timidity in children that prevents them from speaking when in school or with strangers. This excessive fear is due to infantile conflicts and repressions and lack of adjustment, and unless these conditions are removed, a serious neurosis may develop.

630

The Etiology of Stuttering. JOHN M. FLETCHER, *Jour. Amer. Med. Assn.*, April 8, 1916.

The author separates stuttering from stammering and other speech defects on the ground of its intermittent character, its non-association with organic lesions and its dependence on certain states of mind, emotions, feelings, etc. The symptoms may be classed under three heads: physiologic, psychophysical and mental. Under physiologic we find, first, disturbances of breathing, the stutterer withholding inhalation beyond the point of the inception of speech, often attempting to speak with empty lungs. In other cases the natural rhythm of breathing is disrupted (as shown by ragged, irregular waves instead of regular waves on the pneumograph), so that the speech becomes spasmodic. Physiologic and psychophysical symptoms lack the definiteness of correlation needed to give them pathognomonic value. Among the mental causes are fear,

anxiety, distrust, etc., but in addition, also, there are "attitudes" affecting the stutterer's ability to speak, particularly attitude towards others. The conclusions reached are (1) that stuttering is a mental defect and (2) that the treatment should be primarily educational. ED.

639

Agitophasia Associated with Agitographia. J. S. GREENE, *Medical Record*, Oct. 28, 1916.

In agitophasia the mental action is so rapid and the desire to speak is so excessive that the speech organs cannot keep pace, there being a disproportion or a form of ataxia showing an incoordination between the desire to talk and the motor skill. The normal time correlation between speech and thought is lost. Attention to what is heard is so superficial that on repetition many words are distorted, swallowed and mutilated. Pathologically Broca's area is involved so that motor vocal memories are distorted. The agitographia is explained by the fact that the graphic motor word memories, being acquired last, are the least deeply imprinted and most easily disarranged. There is also lingual ataxia due to a defect in the "ideogenic center." The fundamental basis of all treatment in cases of agitophasia with or without agitographia is the inculcation of a sense of rhythmical slowness, both in speech and in writing which is best accomplished by suitable pedagogic exercises. ED.

652

Hysterical Mutism. G. HUDSON MAKUEN, *New York Med. Jour.*, May 27, 1916.

The mutism occurs generally in conjunction with other hysterical phenomena, although it may be the only hysterical symptom. Hysterical mutism may occur in conjunction with organic diseases which themselves simulate hysteria. Hysterical mutism differs from hysterical aphonia in that the mutism shows a more extended disability of the speech mechanism and it differs from motor aphasia in that the mutism is absolute.

Dr. Makuen states that he has seen only two well defined cases of this condition, one reported by him in 1906 and the second the subject of the present report. This case is discussed in detail not only from the laryngological point of view but also from the neurological. Attempts to "scare back" (there had been a severe fright from a threatened railroad accident) her voice were unsuccessful and very little progress was made with attempts to develop whispered speech. Finally, some friends of the patient took her to a religious camp meeting where she was induced to "pray back" her voice and she was urged to pray long and loud. The enthusiasm and excitement were intense and this seemed to be necessary to bring about a mobilization or aggregation of her psychical forces and to enable her to speak with a laryngeal sound after many months of complete aphonia. ED.

658

A Note on Treatment of "Functional Aphonia" in Soldiers from the Front. W. MILLIGAN, Proc. Royal Soc. Med., Laryngol. Sec., April, 1916.

The author has had a number of very troublesome cases of aphonia among soldiers; the worst type has been when the soldier has been tem-

porarily buried as the result of a shell explosion and has been rescued very much "shocked." Drugs, putting a brush in the larynx, using electrodes, etc., have been of no avail in restoring the voice. The patient is then etherized and when he has partially come out of the anesthetic a laryngeal spatula is introduced into his larynx and moved about. As a rule the patient begins to shout and he is encouraged to do so until he is quite aware that he is shouting. ED.

659

General Narcosis as a Measure for the Cure of Hysterical Mutism, Aphonia and Deafness. M. MORIONDO, *Arch. ital. di Otol., Rinol. e Laringol.*, Nov., 1916.

This method has proved of immense value in many cases of mutism, aphonia and deafness of psychoneurotic origin resulting from shell shock. The patient is anesthetized with ether and in many cases has been able to use his voice or hear after months of ineffective other treatment. ED.

661

Loss of Speech Caused by Nervous Shock. GIUSEPPE PANSERA, *Policlinico*, Dec. 10, 1916.

The patient was a soldier who in August, 1916, became mute after the explosion of a grenade close to him. Various measures were tried without success. Finally—his hearing was normal but he was completely speechless—he was placed under an anesthetic and he recovered his speech. At first it was monosyllabic but after a course of vocal exercises it became normal. In answering questions he stammered a little, a defect which he had not had before. ED.

663

Mutism and Deafness Due to Emotional Shock Cured by Etherization. D. F. PENHALLOW, *Boston Med. and Surg. Jour.*, Jan. 27, 1916.

The author's experiences agree with those of others at the front as to the value of general narcosis in cases of hysterical mutism and deafness resulting from shock due to shell explosion or emotional disturbances. ED.

668

Deaf-Mutism from Shell Explosion Causing Injury to the Medulla Oblongata. A. VON SARBO, *Medizinische Klinik*, Sept. 17, 1916.

In some of the cases of shell shock there is actual damage especially to the centers of the eighth, ninth, tenth and twelfth nerves, causing deafness and loss of the power of speech as a result of the driving in of the medulla into the foramen magnum and the cerebrospinal fluid into the fourth ventricle. In other cases the shock may produce fracture of the base of the skull with injury to the nerve centers in the medulla. The prognosis is, in a large proportion of cases, good. ED.

686

Window Resection of the Larynx for the Removal of Intrinsic Malignant Diseases. F. ADAMS, *Northwest Medicine*, Oct., 1916.

The author reports a case of carcinoma of the left vocal cord for the removal of which a window resection was performed and after giving a description of the operative technique he states that the great advantages

of this method result from the easy access it provides. Instead of operating through a narrow slit, one has ample room, can see the limits of the growth and take away exactly as much tissue as one wishes. The operation can be caried out rapidly. It would not be too much to claim that, from the time of the tracheotomy being completed, the subsequent steps of the operation do not occupy half the usual time required for thyrotomy. All bleeding points may be controlled with pressure forceps in the usual way. ED.

692

Operative Treatment of Supralaryngeal Stenosis by External Pharyngotomy and Consecutive Plastics. G. AXHAUSEN, *Arch. fuer klin. Chir.*, p. 533, 1916.

Axhausen gives the details of two highly developed cases of pharyngeal stenosis in which he performed an external pharyngotomy followed by a plastic operation a month later. He believes that in severe stenosis there is a great advantage in the radical operation practiced by him and that the stenosis can be thus overcome with certainty together with laryngeal displacement, if present, to improve respiration. ED.

693

Laryngeal Abscess. MILTON T. BALLIN, *New York Med. Jour.*, Oct. 21, 1916.

Laryngeal abscess is one of the unusual affections of the throat, and that it is not more frequent is surprising when the number of people suffering from inflammatory processes of the throat is considered. It may arise as a primary condition, or secondary to some other infection. It is an infection of adult life and never met with in children as a primary condition. It is surprising that abscess of the larynx is so infrequent, probably due to its anatomical site.

It may arise primarily as overexertion, rheumatism, catarrhal conditions, etc. Secondarily it is seen in pyemia, peritonsillar abscess, erysipelas. It may be extra or intralaryngeal. Most cases are unilateral. It may extend into deep tissues of the throat. Most abscesses are extralaryngeal. Its course is rapid, usually reaching its termination in ten days.

Symptoms are at first simply a burning sensation in the throat. Then the symptoms of pressure, with enlargement of the cervical glands and temperature elevation. Voice becomes thick, and mucus secretion is blood tinged.

Diagnosis is made by the symptoms and laryngeal examination, by laryngoscope or mirror. The treatment is conservative. Relief of pain by sprays and inhalations and cold compresses. Sooner or later it is necessary to open the abscess under cocaine anesthesia. If the pressure symptoms increase it may be necessary to do a tracheotomy.

FRANCIS R. PACKARD.

710

Right Laryngohemiplegia Following a Goiter Operation. L. G. DAVIDSON, *Med. Jour. of Australia*, June 3, 1916.

The loss of voice occurred immediately after the operation. As soon as patient attempted to drink any liquid a violent laryngeal spasm was set up. These attacks occurred two or three times daily for a considerable

time. The voice was reduced to a whisper at first and afterwards became husky, feeble and unmuical. At times it was also bitonal. Examination revealed complete right laryngohemiplegia. The right arytenoid was motionless; the right cord, crescentic in shape, was motionless. After twelve months the voice began to improve. The choking attacks lessened in frequency. The patient regained a very fair use of her voice for ordinary purposes. ED.

711

Fractures of the Larynx. C. ESCALADA, *La Prensa Med. de Argent*, V. 2, p. 431, 1916.

The author made six series of experiments on the cadaver, using anteroposterior pressure upon the thyroid and cricoid. He then repeated the experiments using transverse pressure. In general he found that a pressure of 55 to 80 kilograms was necessary to fracture the larynx, but that the force varied with the age of the subject and the degree of ossification. ED.

714

Clinical Pathology of Tuberculous Laryngitis. JULIUS DWORETZKY, *Annals Otol., Rhinol. and Laryngol.*, Dec., 1916.

A study of one hundred cases of laryngeal tuberculosis showed the following incidents: *Sex*, males 64, females 36; *age*, between 15-20, 14; between 21-30, 53; between 31-40, 21; between 41-50, 12; *sputum*, positive 100; *pulmonary stage*, incipient 12, moderately advanced 59, far advanced 29; *laryngeal stage*, first stage 60, second stage 33, third stage 7; *clinical types*, acute 9, subacute 52, chronic 39; *epiglottis*, negative 16, congested 42, anemic 14 (clinically non-tuberculous 72), slight infiltration 20, marked infiltration 3, infiltration with erosion 5 (tuberculous 28); *interarytenoid space*, negative 5, congestion 4 (clinically non-tuberculous 9), slight infiltration 41, marked infiltration 25, infiltration with erosion 18, papillomatous growths 6, tuberculoma 1 (tuberculous 91); *aryepiglottic folds*, non-tuberculous 80, tuberculous 20; *arytenoid cartilages*, clinically non-tuberculous 44, tuberculous 56; bilateral involvement 43, unilateral involvement 13; *ventricular bands*, clinically non-tuberculous 73, tuberculous 27; bilateral involvement 15, unilateral involvement 12; *vocal cords*, clinically non-tuberculous 58, tuberculous 42; bilateral involvement 30, unilateral involvement 12; *vocal process*, clinically non-tuberculous 40, tuberculous 60; bilateral involvement 44, unilateral involvement 16.

The author's classification of tuberculous laryngitis: *Stage of infiltration*, positive sputum (negative in exceptional cases), recurrent or persistent hoarseness, dysphagia present or absent, sign of infiltration of any or all parts of the larynx, especially interarytenoid space, vocal cords, aryepiglottic folds, ventricular bands, arytenoid cartilages or epiglottis. *Stage of edema with superficial erosion*, positive sputum, persistent hoarseness, dysphagia present or absent, dysphonia present or absent, signs of tumefaction of the larynx with superficial erosion. *Advanced stage*, positive sputum, marked hoarseness or aphonia, dysphagia present or absent, dysphonia present or absent, marked tumefaction and ulceration of any or all parts of the larynx, perichondritis sometimes present. EE.

743

Aphonia with Mitral Stenosis. L. R. Lanza, *Gaz. degli Ospedali e delle Cliniche*, Jan. 16, 1916.

Three cases. The first, pressure on the left recurrent nerve by the enlarged heart; the second, paresis limited to abduction of the left vocal cord; the third, edema of the vocal cords. Ed.

746

Tuberculous Laryngitis and War Aphonia. G. Liebault, *Rev. de Laryngol., d' Otol. et de Rhinol.*, No. 20, Oct. 31, 1916.

Among the men who have lost their voice in the war some attribute their aphonia to commotion or nervous traumatism caused by shell explosion. In most cases, however, the aphonia comes on gradually without shock. Some come to the services of voice re-education with a diagnosis of more or less obstinate nervous aphonia; others come with a diagnosis of definite or suspicious tuberculous laryngitis. Liebault saw ten cases where in addition to evident tuberculous lesions there were lesions of overstrain of the voice or chronic laryngitis. Appropriate treatment with a course of phonetic re-education effected a cure. All of these soldiers traced their condition to their stay in the trenches where they suffered from fatigue, cold and wet, and would begin with a cold developing into bronchitis with hoarseness and finally loss of voice. In some cases tuberculosis is suspected but very often no bacilli are found, and the man is sent to be treated for laryngitis. In some the mirror shows at first sight a normal state of things; it is only when an effort is made to produce the voice that it is seen that the vocal cords do not approximate; there is paresis of the constrictors, which may be affected all together or separately. Such a case is one of pure nervous aphonia, curable by ordinary care and re-education. There are other cases, more ill-defined in character, which may give rise to the suspicion of incipient tuberculosis. Examination is difficult owing to an irritable condition of the mucous membrane; the upper orifice of the larynx is sometimes swollen and at first sight the interarytaenoid region looks thickened and velvety; the ventricular bands are also tumefied. In spite of these appearances, many elements warranting the diagnosis of bacillary laryngitis are lacking. There is no pallor of the velum, sometimes, on the contrary, there is increased redness; no hyperaesthesia, but only pharyngeal irritation. Careful analyis of the objective intralaryngeal conditions is important. The swelling of the ventricular bands is a thickening rather than an infiltration. The thickening of the interarytaenoid mucous membrane, which used wrongly to be regarded as a premonitory symptom of laryngeal tuberculosis, is in the cases under consideration a hypertrophic rather than an oedematous condition. Moreover, the mucous membrane covering the arytaenoid cartilages looks healthy, and the cartilages themselves move freely; the aryepiglottic folds do not show the puffiness characteristic of bacillary laryngitis. If the doctor tries to make the patient produce a sound the whole laryngeal vestibule is seen to close up, so that the vocal cords are hidden; if seen, they are often white, sometimes a little rough and reddened, but they never present the erosions like finger-nail scratches or the carmine redness which is so suspicious in a patient suffering from fatigue. Lastly, they work im-

718

Roentgen Treatment of Benign Growths of the Larynx. J. W. FRANK, *Jour. Ophthal., Otol. and Laryngol.*, Nov., 1916.

The author states that the Roentgen treatment of benign growths of the larynx has been quite successful and he summarizes the following technique: High penetration equal to about a nine-inch spark gap; filter of three or four millimeters of aluminum; cross fire application and an exposure sufficient to turn a Sabourand pastille to five or six points on the Hampton radiometer scale. Treatment should be repeated once in three weeks until a cure is accomplished, usually requiring from three to five series of treatments. ED.

726

Some Suggestive Indices to Dysphonia. J. A. HAGERMANN, *Med. Rev. of Reviews*, Sept., 1916.

The author points out that functional aphonia may be met with during the course of diseases occurring remote from the larynx and which are marked by evidences of toxemia such as jaundice. Chronic lead poisoning may be characterized by unilateral or bilateral paralyses of the vocal cords. A latent empyema of an accessory sinus may be the source of an excretion of purulent fluid which, trickling down the posterior pharyngeal surface perpetuates a chronic congestion of the posterior laryngeal wall, with accompanying hoarseness. The protean manifestations of obscure laryngeal symptomatology which sometimes characterize adolescence, the menopause and continence and which are inclusively denominated as hysterical, would be more judiciously analyzed if we were to cease concentrating our attention upon the palpably incapacitated organ. It is well established that toxins emanating from certain strains of bacilli exercise a definite selective function in choosing a host. In the absence of patent signs to account for difficult or impossible phonation, the age, sex, general health and civic environments must be considered. ED.

739

Improved Operation for Intrinsic Disease of the Larynx. H. L. LACK, *Lancet*, Nov. 11, 1916.

The steps of the operation are as follows: The larynx and upper rings of the trachea are exposed the usual vertical median incision and a tracheotomy tube is inserted. The soft tissues of the perichondrium are then turned off the thyroid cartilage on the affected side and the cricothyroid membrane and the ring of the cricoid are laid bare. Thyrotomy. Inspection of the growth through the opening thus made. With strong cutting forceps the growth, with a sufficient margin of healthy tissue together with the overlying cartilage, is cut away in one piece. If, however, it is known that the growth is malignant and that it is limited to one vocal cord, thyrotomy is not necessary. With a small saw the thyroid cartilage is divided in the median line from its lower edge upward nearly to the upper margin. A transverse incision is then carried backward just below the upper edge of the thyroid nearly to the posterior border and then downward just in front of the posterior border. The square piece of cartilage thus marked out is removed. The larynx is subsequently opened by dividing the underlying soft parts. ED.

platform. Then a thread is passed through the eyelet and moored to the patient's ear. It is drawn fairly tight and examination is made every two or three days to see that accurate position is maintained. In this way reunion is prevented. ED.

757

Operation of Laryngofissure; Some New Instruments for Improving the Technique. I. MOORE, *Lancet*, Oct. 14, 1916.

The author has designed the following satisfactory instruments: thyroid clamp; tracheal shears; thyroid cartilage saw (and shears); self-retaining retractor; intralaryngeal forceps and scissors. ED.

762

Thermotherapy in Certain Forms of Catarrhal and Tuberculous Laryngitis. E. J. MOURE and GOT, *Rev. de Laryngol. d' Otol. et de Rhinol.*, No. 9, May 15, 1916.

The cases treated by the authors consisted of the following: Spasmodic laryngitis, 2; acute simple laryngitis, 7; acute influenzal laryngitis, 5; chronic simple laryngitis, 2; post-influenzal laryngitis, 2; tuberculous laryngitis, 12. In the spasmodic form good results were obtained during the treatment, but in the interals between the treatments the spasmodic attacks recurred. In the simple cases from four to fifteen treatments were necessary to bring about a cure in all the cases. The same can be said about the influenzal cases. In the chronic simple cases improvement was even more rapid than in the influenzal. In the tuberculous cases the results were very encouraging in the early cases and nil in the more advanced cases. ED.

764

Fibrolipoma of the Larynx. GORDON B. NEW, *Jour. Amer. Med. Assn.*, Feb. 19, 1916.

A report of a case in a woman, 29 years old, the symptoms dating for about eight years. The tumor was removed by thyrotomy. It had no definite pedicle. ED.

777

Papilloma Malignum Laryngis. E. SCHMIEGELOW, *Nordisk Tidskrift for Oto-Rhino-Laryngol.*, Bd. 1, No. 1, p. 1, 1916.

The author calls attention to the difficulties in diagnosis of endolaryngeal malignant growths and urges that no operative measures of a radical nature should be undertaken without a preliminary microscopic corroboration of the diagnosis. As an example that the clinical diagnosis is not always reliable he cites the case of a woman 71 years old who suffered from a large growth on the left side of the larynx accompanied by great difficulty in swallowing and hoarseness. The appearance was distinctly malignant so that an unfavorable prognosis was given. Because of the patient's weakness and advanced age a total resection of the larynx was out of the question. He accordingly performed gastrostomy and there was striking improvement following this operation that in the course of a few months a complete cure could be substantiated. Syphilis had been ruled out; the condition was a perichondritis.

The author further calls attention to a group of new growths in the larynx which, notwithstanding that microscopically they are distinctly

perfectly. The interesting point in these cases is that the constitutional state and the condition of the lungs combine with the appearances in the larynx to arouse suspicion. If to these laryngeal and pulmonary symptoms are added the fatigues of trench life, and if the man after months of privation has lost flesh, he will almost inevitably be taken to be suffering from tuberculosis. But the absence of bacilli from the sputum and the condition of the larynx should put the observer on the right path. When a correct diagnois is made, cure is, with proper treatment, a matter of a few weeks, and the man can return to duty. On the other hand, a wrong diagnosis causes long stays in one hospital after another, with pulmonary treatment which improves the bronchial condition, but also with a laryngeal therapy of fumigations, inhalations, wet compresses, and so forth, which has never alone cured laryngitis caused by wrong use of the voice. ED.

750

Angioma of the Larynx. EMIL MAYER, *Medical Record*, June 17, 1916.

A case report of this rare occurrence, the patient being a woman 52 years old. Chief complaint hoarseness of one year's duration. Six months before she had been hoarse for a time, had a profuse hemorrhage from her mouth and her hoarseness left her to return some months later. Some cough, no pain, attacks of dyspnea on slightest exertion. Diagnosed as cancer of larynx. Laryngotomy and excision of tumor under local anesthesia. Uneventful recovery. Sections showed the tumor to be a hemangioma. The great interest in a case of this kind lies in the diagnosis, especially on consideration of the danger with probably fatal consequences that may follow any attempt at removal of a portion for diagnostic purposes. The points that suggested to the author the true nature of the growth were the yielding character of the tumor to the probe and the history of an unaccounted for hemorrhage. Finally, from a consideration of the few recorded cases in the literature the author concludes that (1) angioma of the larynx is a rare disease occurring mostly in adults and the proportion of males to females is approximately four to one; (2) it may be mistaken for cancer; (3) endolaryngeal removal of a portion of the tumor for microscopic diagnosis or its complete removal in this manner is very dangerous; (4) laryngofissure, removal and suture of the mucosa are safe and feasible procedures. ED.

753

A Note on Treatment of Gunshot Injuries of the Larynx Where "Webbing" of the Vocal Cords Has Taken Place. W. MULLIGAN, Proc. Royal Soc. Med., Laryngol Sec., April, 1916.

Where there is a cicatrix uniting the cords to each other mere division is of little use. To prevent this the author has had an instrument made which consists of a tracheotomy tube with the inner tube slit down the greater part of its curve. The perpendicular rod is a screwed rod and on it revolves an equilateral triangle of metal with the sides grooved. The screw arrangement is passed down through a laryngeal spatula through the hole in the tracheotomy tube so that its bulbous end lies in the tube itself. The inner tube is then passed through the outer one, thereby fixing the perpendicular rod. By means of vision one judges when the cords are lying opposite the little grooves of the triangular

papillomata, nevertheless pursue a malignant course. He reports a case of this character in a man of 52 years. Laryngofissure and energetic x-ray treatments and finally total resection of the larynx were ineffectual to prevent a fatal outcome, and yet at all times the tumors showed microscopically a benign papillomatous structure. A review of the literature on this subject is incorporated in the article. ED.

782

Leukoplakia of the Vocal Cords. HERBERT TILLEY, *Proc. Royal Soc. Med., Laryngol. Section*, March, 1916.

Patient 52 years of age. No history of lues. Wassermann negative. Small smooth patch on right side of tongue suggestive of chronic superficial glossitis. No other stigmata of syphilis in throat or elsewhere From middle of upper surface of each cord and extending to within one-quarter of an inch of the anterior commissure a dead white patch could be seen identical in appearance with the plaques seen in a leukoplakic tongue. The plaque surfaces are flat, with no suggestion of ulceration, thickening or infiltration of the cords in the neighborhood of the patches. The fact that the condition is bilateral and that the cords are normal in the immediate region of the anterior commissure would seem to negative epithelioma. ED.

791

Tracheobronchial Syphilis. H. ARROWSMITH, *New York Med. Jour.*, June 24, 1916.

The author lays great stress on Dr. Conner's paper on this subject published in 1902, which comprised 112 cases, in 97 of which there was post-mortem investigation. In this series dyspnea was the most constant and conspicuous symptom. Pain was noted only in three cases. Dr. Arrowsmith's observations comprise two cases. The first was in an Italian, married, 44 years old, who complained of shortness of breath and cough, with paroxysmal exacerbations of both, which first began to trouble him two and one-half months before coming under observation. No luetic history, personal or family, obtainable; history negative except that for an indefinite period he had had cough at night and two weeks before admission he had an attack of violent dyspnea and cough. The night before his admission (Nov. 10, 1915) to the hospital he had a return of these symptoms. Cardiac examination negative. Lung signs changeable and indefinite. Abdomen and extremities showed nothing noteworthy. The day after admission the patient had a violent attack of dyspnea in which he entirely stopped breathing for a minute and was resuscitated by means of a pulmotor. Similar, but less violent, attacks subsequently. An x-ray picture taken January 10, 1916, showed normal outline of the aorta and left side of the heart, with definite thickening at the root of the left lung. The right lung showed slight fogginess down to the fifth rib posteriorly with a rather ragged shadow to the right of the vertebrae at the level of the heart and extending out two inches. On January 19, direct laryngoscopy under oil-ether colonic anesthesia showed no lesion of the larynx. A 7 mm. Jackson bronchoscope was passed and a definite and symmetrical diminution of the lumen was encountered which required a certain amount of pressure to advance it. Considerable pressure was also required to enter the primary bronchi

and the orifices of the secondary were only suggested. There was a decided unyielding resistance *outside* the mucous membrane. Diffuse indurative peritracheobronchitis with stenosis describes the condition found. The patient was placed on intensive mercurial treatment (salvarsan was not obtainable) with prompt response to the treatment so that by February 3, 1916, he was getting about with very little dyspnea. On February 22 he began to cough more and had a return of the dyspnea and his condition became rapidly worse. On March 1 he became unconscious and died. No autopsy was obtained.

In the second of Dr. Arrowsmith's cases the larynx was implicated to the extent of a decided thickening of the vocal bands with some superficial scarring and serration of their free borders. The tracheal mucous membrane was greatly congested, the upper rings ill-defined and in the lower two-thirds indistinguishable. On the posterior tracheal wall, about one inch above the carina, was sessible, fungating mass about the size of a pea. Energetic specific treatment cleared up all subjective symptoms. ED.

792

Absorption of Epinephrin After Intratracheal Injection. J. AUER and F. L. GATES, *Jour. Exper. Med.*, June, 1916.

In a normally breathing rabbit a simple intratracheal injection of a solution penetrates within a few seconds to the alveoli, chiefly those of the left lower lobe. Absorption is rapid and probably takes place largely through the capillaries of the pulmonary veins, to a slight extent perhaps through the capillaries of the bronchial veins which empty into the pulmonary veins; probably some absorption occurs also through the lymphatics. ED.

795

Primary Sarcoma of the Trachea. STURE BERGGREN, *Oto-Laryngologiska Meddelanden*, Br. 2, H. 2, p. 371, Aug., 1916.

The author reports a case of primary sarcoma of the trachea in a man, 50 years of age. The tumor was situated in the upper portion of the trachea, on the anterior wall, and was about the size of a hazel nut. Microscopic examination showed it to be a small round cell sarcoma. It was removed by tracheofissure and examination four months after operation showed no recurrence of the growth. The author appends a review of the cases collected from the literature, numbering altogether twenty. ED.

811

Respiratory Affections in the War. H. HOCHHAUS, *Deutsche mediz. Woch.*, Sept. 21, 1916.

Chronic bronchial affections were difficult to manage as new exacerbations constantly followed exposure. Asthmatic catarrh proved exceptionally rebellious. Long bed rest and medication were necessary to restore approximately normal conditions, and a return to service, even to garrison duty, speedily brought on severe relapses, so that the men had finally to be dismissed from the army. It seems wiser not to pass asthmatics for military service, even although the men may happen to feel well at the time. Two of these men with asthma and chronic bronchitis had repeated attacks about every two weeks, with high fever, sweats, cyanosis, dyspnea and rapid pulse. These attacks lasted only

for a few days, and then the symptoms subsided completely until the next attack, the intervals gradually lengthening. He noticed that men with an old healed apical process seemed to be especially susceptible to "catching cold." ED.

814

Tracheobronchitis Due to Nitric Acid Fumes. CHEVALIER JACKSON, *New York Med. Jour.*, Nov. 4, 1916.

A man, 35 years old, previously in good health, was admitted to the hospital complaining of burning in the throat following a two hours' exposure to nitric acid fumes. Half an hour after exposure his lips became blue and five hours later patient fell, becoming unconscious for a few minutes. Then cough, difficulty in breathing and cyanosis of lips and face were noted. Sibilant and subcrepitant rales all over both lungs anteriorly and posteriorly. By indirect laryngoscopy frothy mucous could be seen bubbling up and down in the trachea; no cough reflex. By bronchoscopy, acute tracheitis and bronchitis. Patient at times unconscious. Tracheotomy performed. Secretions continually wiped out. At the end of the fourth day patient could cough out the secretions through the cannula. The author remarks that where the patient is drowning in his own secretions tracheotomy should be done in order to give easy access to the lower air passages for the frequent removal of secretions provided the basic condition is curable and is not a fatal illness (thoracic cancer, aneurysm, etc.). ED.

815

Bronchospasm. N. VON JAGIC, *Wiener klin. Woch.*, Jan. 27, 1916.

The article deals with the influence of epinephrin on bronchospasm and asthma. The author has also been using epinephrin in dyspnea from other causes, even in elderly patients. The effect of the injection in cases of asthma is very prompt. Within half an hour after the injection, in an acute attack of asthma, the patient is able to return to work and remains free from any further asthmatic attacks for a long time. In mild cases the author prescribes the epinephrin in suppositories. Where there is secondary emphysema digitalis may have to be prescribed for stimulation of the heart because the action of the epinephrin is directed merely on the bronchospasm and the diaphragm. In acute emphysema the excursions of the diaphragm are very short and in the author's experience, when this was corrected by epinephrin the relief was so great that it demonstrated the importance of this and of bronchospasm in emphysema, whatever its cause. ED.

819

Tuberculosis of the Bronchial Glands. MARY E. LAPHAM, *New York Med. Jour.*, Oct. 21, 1916.

In tuberculosis of the bronchial glands if the mediastinal structures sufficiently adapt themselves to the gradually increasing size of the glands there may be no pressure symptoms. The syndrome of tuberculous toxemia is the same as that from the lungs. The septic manifestations, pulse, chills, temperature and sweats are the same as in other septicemias. In less violent types, in which septic symptoms do not appear, there is a tendency towards concealment although the pulse and temperature may be sufficiently characteristic to lead to a correct diag-

nosis. A pulse of ninety-six with a history of loss of strength and inability to work is suspicious. The temperature is frequently not above 99. Among the possible consequences of tuberculosis of the bronchial glands are meningitis, tracheobronchian stenosis, laryngeal disturbances, erosion of the esophagus, trachea, bronchi and blood-vessels, tuberculous peribronchial infiltration of the lungs, etc. ED.

828

Paratyphoid Involvement of the Bronchi or Lungs. J. MINET, *Bull. de l' Acad. de Med. de Paris*, Feb. 15, 1916.

Four cases, two acute and two chronic. Of the former, one was a case of acute bronchitis, the other a case of acute congestion of the lungs, in which paratyphoid bacilli were found in the sputum. Both cases recovered. In one of the chronic cases the bacilli were of the A type; in the other of the B type. There was progressive emaciation and the clinical picture was that of chronic phthisis. The paratyphoid bacilli were present in the sputum in pure culture. The patients, after months of illness, finally recovered. ED.

830

Roentgen Diagnosis of Bronchiectasis. ALEXANDER B. MOORE, *Amer. Jour. Roentgenology*, Nov., 1916.

The Roentgen rays not only furnish us with most valuable information in the diagnosis and differential diagnosis of bronchiectasis, but also in a large percentage of these cases offer us the only means of ascertaining the true nature, extent and location of the affection; such information being absolutely essential in the selection of the course of treatment to be pursued.

Roentgenologically Moore recognizes three types: The infiltrative, the cylindrical and the sacculated. These three forms most probably represent different stages of the disease and show the existence of gross changes that have been demonstrated by pathologists.

The first or infiltrative type appears in the roentgenogram as a more or less stringy increase in density along the course of the bronchi, usually localized in the lower pulmonary lobes and radiating outward from the hilus to the periphery of the chest and extending into the costophrenic angle.

The infiltrative stage is followed by the cylindrical type. There is the characteristic mottled increase in density, extending outward along the course of the bronchi, producing a more or less fan-shaped shadow. The density is usually greatest near the hilus and, distributed throughout this density, one or more areas of diminished density may be located. These areas are more or less clearly circumscribed and are produced by the so-called pseudo-cavitations of bronchiectasis which are dilated bronchioles that have been emptied of their secretions. The visualization of these cavitations depends largely on the ability of the patient to empty the bronchi of secretion, and their presence is pathognomonic of the disease.

The third or sacculated type of bronchiectasis is characterized roentgenographically by the localization of distinct pseudo-cavitations surrounded by dense fibrous tissue. These cavitations are practically always multiple and larger than those encountered in the cylindrical type. They

vary in size from that of a bean to that of a walnut and have a thin wall. The section of a lung involved by the sacculated type of bronchiectasis very strongly resembles a bunch of grapes cut through the center. The fibrous tissue surrounding these groups of sacculations is very dense. It may be so dense and the cavitations may be so filled with secretion that the shadow in the roentgenogram is almost homogeneous and the diagnosis difficult. However, the true condition is usually revealed by emptying the cavities.

Differential Diagnosis.—The more common conditions from which bronchiectasis must be differentiated roentgenographically are chronic purulent bronchitis and lung abscess. ED.

835

Experimental Study on the Use of Apomorphin to Remove Foreign Bodies from the Respiratory Passages. D. DE LA PAZ and F. GARCIA, *Philippine Jour. Science*, Jan., 1916.

This study seems to show the possibility of removing foreign bodies from the trachea by the use of apomorphin. As a matter of fact, a foreign body below the larynx may be forced farther down during the early stage of vomiting because of the descent of the diaphragm and closure of the glottis which in turn cause a rarefaction of the air in the thoracic cavity and a rushing of the air into the deeper parts of the lungs. ED.

837

X-Ray Diagnosis of Surgical Complications Within the Chest. G. E. PFAHLER, *New York Med. Jour.*, June 17, 1916.

The author points out the value of the x-rays in diagnosis of aneurysm, atheroma of aorta, sarcoma, lipoma, carcinoma, thymic enlargement, thoracic goiter, abscess, gangrene and tumors of the lungs, bronchiectasis, foreign bodies and tumors in the larynx, trachea and bronchi. ED.

848

Rupture of the Trachea in Tetanus. A. WALCHER, *Munchener mediz. Woch.*, No. 19, 1916.

A case report in which rupture of the trachea occurred as a result of excessive expiratory pressure caused by spasm of the glottis in tetanus. There was immediate subcutaneous emphysema in the left supraclavicular fossa which soon spread to the neck, necessitating an immediate tracheötomy. ED.

858

Foreign Bodies in the Esophagus. EDMUND BOYD, *Canadian Practitioner and Review*, Sept., 1916.

This is a digest of three years' experience in the Hospital for Sick Children. The writer finds that by far the greater number of bodies were found at a point 1½ to 2 inches below the level of the cricoid, on a level with the inner ends of the clavicles and opposite the first or first and second thoracic vertebrae. In only two cases was a foreign body found behind the cricoid, and the reason why these did not penetrate as low as the others was on account of size. This experience is contrary to the lodging-places pointed out as usual in text-books. The author enters into an interesting explanation as to the reason why bodies lodge at this site.

The author has devised a special supporting frame with an adjustable leather sling to support the head and neck, and the suspension method was utilized. Ten cases are given in detail. WISHART.

876

Foreign Bodies in the Esophagus, Trachea and Larynx. FRITHIOF LEEGARD, *Nordisk Tidskrift for Oto-Rhino-Laryngol.*, Bd. 1, No. 1, p. 47, 1916.

The author mentions 15 cases of foreign bodies in the esophagus (1 metal button, 1 horn button, 3 plum stones, 1 piece of meat, 1 piece of bone, 4 tooth-plates, 1 metal toy wheel, 1 silver coin, 2 chicken bones), one case of foreign body in the trachea (coffee bean) and one case of foreign body in the larynx (bone). In ten of the cases the foreign body was removed (Brüning's instruments) while in the other five cases it descended into the ventricle and passed out per rectum. Detailed reference is made to the diagnosis of foreign bodies in the gullet by means of Roentgen rays. The author has carried out experiments on himself in an endeavor to throw light on this question and placed various objects in his own esophagus and then took photographs of his thorax. Some of the objects were photographed 20 cm. and others 25 cm. from the teeth. In the recapitulation of these experiments it is pointed out that objects of rubber and vulcanized caoutchouc give a distinct image on the Roentgen plate. Glass objects also appear clearly even if comparatively small. In the case of bony objects, especially bone buttons, diagnosis is more difficult. With all kinds of foreign bodies it is easier to obtain a positive result when the substance has passed the upper part of the gullet and entered into the comparatively transparent region between the columna and the heart, the foreign body being more easily hidden in the upper part of the gullet, especially by the clavicle. ED.

893

Asthma; Its Cause and Treatment. W. W. EWBANK, *Med. Jour. Australia*, July 22, 1916.

The exciting cause of asthma is always in the nose and behind this there is some predisposing cause which has not yet been determined, perhaps it is due to a want of balance of some of the endocrinous glands. Asthma spots are hyperesthetic nerve endings, sometimes darker and sometimes paler than the surrounding mucous membrane, occurring mostly in the region of the middle turbinate. There may be eight or ten on each side. The author strongly condemns the use of the cautery in the nose for conditions associated with asthma. He states that it will not destroy the asthma spots which, furthermore, get hidden under the cautery scars. All his operations are done with cutting instruments. Treatment is tedious and may take six or eight months to effect a cure. In five hundred cases operated there were 82 per cent of cures and many of the others obtained a reasonable amount of relief. ED.

898

Elective Localization in the Bronchial Musculature of Streptococci from the Sputum of Cases of Bronchial Asthma. S. OFTEDAL, *Jour. Amer. Med. Assn.*, May 27, 1916.

This paper deals with the question of the bacterial etiology of bronchial asthma. Experiments on lower animals consisting of intravenous

injections of cultures made from the sputum of asthma patients are detailed in which the microscope showed marked distention of the aveoli and thinning and frequently rupture of the aveolar walls. A very marked change was seen in the bronchioles which were contracted as if in spasm, the mucosa being thrown into folds almost obliterating the lumen. In the substance of the musculature a considerable number of streptococci were found. To rule out a general bacteremia cultures from the blood and other body fluids were made, and also of other viscera than the lungs, but nearly in every case the blood and all organs except the lungs were found to be sterile. ED.

899

Autogenous Defibrinated Blood in the Treatment of Bronchial Asthma. KUHN and EMSHEIMER, *Arch. Internal Med.*, Oct., 1916.

The writers were led to their method of treatment by the following consideration: Bronchial asthma is due to sensitization by a foreign protein, therefore, the repeated subcutaneous injection of this protein in small doses should lead to immunization and thus to a cure of the disease. Although the protein responsible may vary in different cases and cannot be definitely determined the assumption is, however, that it is present in the patient's blood either just before or during an attack; hence, blood is withdrawn from the patient at this period, defibrinated and injected subcutaneously. Six cases treated by the authors with this method all showed definite improvement (diminution in frequency and severity of attacks and gain in weight and strength). ED.

901

Role of Pyorrhea Alveolaris in the Causation of Chronic Bronchitis and Asthma. S. P. SHIVDAS, *Practitioner*, April, 1916.

Cases are cited by the author to show that pyorrhea alveolaris is an etiologic factor in these diseases. Cases in which the pyorrhea alone was treated showed either a marked improvement or a disappearance of the lung affection. On the other hand, treatment of the lung affections without attention to the pyorrhea was productive of very little results, except whatever relief could be ascribed to the anodyne remedies that were administered. When both the lung affections and the pyorrhea were treated the asthma and bronchitis either entirely disappeared or showed very marked improvement. ED.

913

Foreign Bodies in the Respiratory Tract. N. W. GREEN *and* L. T. LE WALD, *Annals of Surgery*, June, 1916.

Conclusions: (1) All recently aspirated foreign bodies should be first sought by the Roentgen ray and the bronchoscope and removed, if possible, through the mouth. (2) Failing to remove them through the mouth a tracheotomy should be done and another attempt made by means of the bronchoscope. (3) Failing in this the tracheal wound should be held widely open by wires or a large tube in the hope that the foreign body may be coughed out. (4) If immediate removal by these methods fail a period generally elapses in which the patient may undergo secondary changes in the lung, such as pneumonia, gangrene, abscess and generally an overlying empyema. (5) If the patients recover from these

acute infections, they pass into the class of deferred cases with the foreign body still present as an aggravating factor in their chronic lesion. (6) Removal of the foreign body in these deferred cases does not always effect a cure. (7) The lung abscess must be treated along surgical lines and even then we cannot always hope for a cure, but rather an amelioration of the affliction. ED.

938

A Modified Gram Stain for Diphtheria. ALBERT ALBRECHT, *Jour. A. M. A.*, Nov. 11, 1916.

The staining solution consists of the following:

Saturated alcoholic solution of gentian violet.....25 c.c.
Five per cent dilution of liquor formaldehydi.....75 c.c.

and is to be used according to these directions:

1. Stain with the foregoing gentian violet stain for two minutes.
2. Flood preparation with one-half strength Gram's iodin solution for one and a half minutes.
3. Immerse slide seven or eight times in a jar of 95 per cent alcohol.
4. Counterstain with saturated aqueous solution of Bismarck brown for four minutes.
5. Wash in water and examine.

The Klebs-Loeffler bacillus, when stained according to this method, appears as a brown rod, and the metachromatic granules are stained a deep violet. In other words, the bipolar granules alone remain gram-positive.

A single diphtheria bacillus can quickly be seen in a field with numerous other kinds of organisms.

The picture is that which we are supposed to get with Neisser's stain, but the organisms are stained more deeply, and the results are more constant. ED.

956

Gangrene of the Leg Following Diphtheria. E. B. GUNSON, *British Med. Jour.*, Aug., 1916.

A boy of six years was admitted to the hospital with severe faucial diphtheria on the fourth day of the disease. Twenty thousand units of antitoxin were given on admission and again on the following day. Cardiac weakness and irregularity appeared on the eleventh day. On the seventeenth day there was increase in cardiac dullness and also triple rhythm on auscultation. The liver extended three inches below the costal margin. The following day the patient complained of pain in his right leg, which later became discolored, and the limb was tender to palpation. On the twenty-second day dry gangrene of the right small toe developed and by the thirtieth day the whole leg was in a state of dry gangrene. On the thirty-fourth day of the disease palatal paralysis occurred. Three days later pharyngeal paralysis developed. The diaphragm was acting feebly. During the next fortnight the patient's general condition slowly improved. Strength gradually increased until by the seventy-first day of the disease the boy was able to undergo an amputation at about the middle of the thigh. It was found that the popliteal artery was completely occluded by a thrombus. Further recovery was uneventful. ED.

957

Throat Operations in Diphtheria Carriers. THOMAS HUBBARD, Trans. American Laryngol. Assn., p. 57, 1916.

The author states that when confronted with the problem of throat operations in diphtheria carriers two questions come up: (1) whether the operation is contra-indicated in throat and nasal chambers infested with diphtheria bacilli, and (2) the condition of the patient for tonsillectomy or adenoidectomy. The very fact that the patient is a healthy carrier, no matter how virulent the bacilli may be, shows that perfect immunity is established and that there is no more danger from the diphtheria bacilli than from the ordinary germs present in all other cases. Furthermore, the Schick test can determine the immunity towards diphtheria at the time of the proposed operation. The secondary group, cases that were not primarily immune but have had clinical diphtheria in more or less severe form, are not as a rule ideal surgical subjects. It may be necessary to prolong isolation until convalescence is well established before undertaking any surgical measures. ED.

964

Treatment of Diphtheria Bacillus Carriers. M. LABBE aud G. CANAT, *Bull. et Mem. de la Soc. Med. des Hopitaux*, July 13, 1916.

Twenty-nine patients were treated daily with two copious irrigations of the throat with a 3 per cent mixture of Labarraques solution in water; introduction of a 10 per cent resorcinol ointment into the nasal fossae morning and evening and, in some instances, the application of 1:30 iodo-glycerine to the throat. In 24 of these cases the bacilli disappeared in from fifteen to forty-eight days, in 4 on the ninetieth day and 1 was lost track of but who still showed the presence of bacilli on the seventy-fifth day. Another series of 35 cases were treated by powdered dry serum which was blown into both nostrils four times daily. In this series disappearance of the bacilli occurred in from nine to sixty days, except in one case in which the disappearance was noted after ninety-five days. From the fact that in some cases there was disappearance of the bacilli after an initial serum treatment, followed by return upon the cessation of the serum and disappearance upon resumption of the serum the authors believe that there is evidence of a specific action of the serum. ED.

965

To Hasten Bacteriologic Diagnosis in Diphtheria. H. LANGER, *Munchener mediz. Woch.*, No. 38, Sept. 19, 1916.

Diphtheria bacilli can be decolored with alcohol much more rapidly than pseudodiphtheria bacilli. The author uses brilliant green as a stain instead of gentian violet and after-stains with dilute fuchsin, which shows up the bacilli especially distinctly. ED.

978

Nasal Diphtheria. K. OCHSENIUS, *Munchener mediz. Woch.*, Oct. 10, 1916.

In the course of nine months, in private practice, the author encountered 32 cases of pure nasal diphtheria. The majority of the children were from 2 to 6 years old. In 88 per cent one side of the nose was at first alone affected. Two of the children developed diphtheria in the

other side of the nose after an interval of five and ten weeks. A tendency to repeated but slight hemorrhages was present in every case. Formed membranes were only rarely expelled. The course was always favorable. ED.

982

The Problem of Diphtheria Carriers. SOPHIE RABINOFF, *Jour. Amer. Med. Assn.*, Dec. 9, 1916.

The author gives her experience with the treatment and care of diphtheria carriers in an institution caring for about 400 children under 5 years of age. All have been subjected to the Schick test in a routine way previously so that there was a record of susceptibles and nonsusceptibles. Several cases of diphtheria occurred among the children, as well as among the attendants, and the patients were promptly isolated, while nose and throat cultures were taken of every one in the institution. As the immunity conferred by antitoxin is only temporary, lasting about three weeks, efforts were directed to the prompt elimination of carriers to prevent further exposure to susceptibles. In the beginning they were either isolated or placed in dormitories with children shown by the Schick test to be immune. Only those were considered carriers who furnished two successive positive cultures. Local treatment was rigorously carried out, but there was a group of resistant patients which continued to show the bacilli over a long period of time, or in whom the cultures after becoming negative became again positive after stopping treatment. They have, therefore, continued to follow up discharged patients and have observed them from two to six months. Local treatments all failed to give satisfaction, and Fuller's earth blown into the nostrils according to the method suggested by Rappaport and Hektoen only gave good results in adults. It was finally decided to remove the tonsils and adenoids in all cases in which the organisms persisted, taking small groups at a time and continuing to make cultures, pending operation. Up to the present time they can report only a small group, ten in all, but the results are so promising that they feel justified in proceeding with this method. The patients follow the usual course following tonsillectomy. After the membrane which forms at the tonsillar incisure has disappeared, the cultures invariably become negative, the results being similar to those reported by Ruh, Miller and Perkins (*Journal A. M. A.*, March 25, 1916, p. 941). They conclude that removal of tonsils and adenoids seems to offer a safe and rapid method of eliminating diphtheria bacilli from the nose and throat of carriers and should be resorted to when other methods fail. ED.

985

Laryngeal Diphtheria in Adults. J. D. ROLLESTON, *Clinical Jour.*, Nov. 1, 1916.

Rolleston points out, first, that the affection in adults is very rare. Of 11,313 patients admitted to the Grove Hospital in London during a period of 16 years, 1,156 were suffering from laryngeal diphtheria, including four adults. He admits that a routine laryngological examination would probably have discovered other cases in which the larynx was involved, but he is willing to limit himself to cases in which adults showed signs and symptoms of true laryngeal diphtheria. Dyspnea did not make its

appearance until later in the disease, if at all. The most striking symptoms were extreme prostration and intoxication. Of the four adult patients one recovered. Because of the fact that the condition is not recognized, without laryngeal examination until late, antitoxin is usually of small avail. The early symptoms in the adult may include sore throat, vomiting and cough. Aphonia is comparatively rare. ED.

987

Studies in Diphtheria: The Treatment of Diphtheria Carriers by Tonsillectomy. H. O. RUH, M. J. MILLER and R. G. PERKINS, *Jour. Amer Med. Assn.*, March 25, 1916.

The removal of tonsils (and adenoids) is an effective method of eliminating diphtheria bacilli in carriers. After the post-operative membrane has disappeared cultures from the throat are invariably negative. ED.

988

Cerebellar Ataxia After Diphtheria. SEROG, *Medizinische Klinik*, No. 48, Nov. 26, 1916.

Report of a case in an adult. Large doses of antitoxin were necessary to control the diphtheria and in the course of the disease there was marked psychic disturbance and bilateral paralysis of the palate. This cleared up but there developed paralysis of accommodation, muscular hypotonus, absence of tendon reflexes in the legs, extremely marked ataxia and definite bullar speech. The patient made an incomplete recovery. ED.

989

Therapy of Nasal Diphtheria. DR. SCHWERIN, *Munchener mediz. Woch.*, Nov, 14, 1916.

The author asserts that routine antitoxin treatment in nasal diphtheria is all right for the protection of other children, but in the treatment of these cases (40) he did not invariably pursue this course. In the majority of cases he introduced white precipitate ointment into the nostrils and the clinical results were very good, and within a short time the nasal secretions were found to contain no bacilli. Only where the temperature was high did the author use antitoxin. Nasal diphtheria is in the great majority of cases a benign affection, either the bacilli are of low virulence or the blood contains a great amount of antibodies. ED.

1009

Ambulatory Types of Thyroid Disease. ELEANOR BERTINE, *Medical Record*, Nov. 18, 1916.

Of 134 cases of thyroid disease, there were: (a) Nine simple goiters; (b) sixty-five cases in which stimulation from excessive thyroid activity was clinically the chief feature; (c) twenty-seven cases in which depression, physical and mental, was the chief feature; (d) thirty-three cases in which there was a mixture of stimulation and depression.

Simple quantitative change in thyroid secretion is inadequate to explain groups b and c, but the cause must be sought in some at present ill-understood inco-ordination between several endocrine glands. Hence of 134 cases of thyroid disease, at least 60 present features of a complex endocrine disturbance. ED.

1013

Clinical Value of Metabolic Studies in Thyroid Cases. W. M. Boothby, *Boston Med. and Surg. Jour.*, Oct. 19, 1916.

In normal persons the basal metabolism rarely varies more than 10 per cent from a normal figure, depending upon age and sex, when compared by surface area determined by DuBois height-weight curve. In conditions of thyroid overactivity the metabolism may increase to 100 per cent above normal and in underactivity it may decrease to 50 per cent below normal. Ed.

1016

Conditions Affecting Secretion of the Thyroid Gland. W. B. Cannon, *Boston Med. and Surg. Jour.*, Oct. 19, 1916.

If the thyroid gland and the neighboring indifferent tissues are connected with a galvanometer, stimulation of the sympathetic strand high in the thorax evokes an action current after a latent period, varying usually between five and seven seconds. The internal secretion of the adrenal gland, or adrenin, will have the same effect in the body as sympathetic nerve impulses. Stimulation of the nerves to the adrenal glands, causing their secretion to be poured into the blood stream, will evoke a characteristic electrical change in the thyroid, thus establishing the influence of adrenal activity on the thyroid. Ed.

1020

Operative Results of Exophthalmic Goiter. Vernon C. David, *Annals of Surgery*, Oct., 1916.

Of 65 patients operated for exophthalmic goiter from 1905 to 1914, inclusive, 38 per cent were cured and 40 per cent were greatly benefited. Of 35 patients having exophthalmos before operation only 13 or 37 per cent reported themselves relieved from it. The duration of the symptoms in the patients cured was sixteen months, in those greatly benefited was twenty-three months and in those not improved was thirty-three months. Ed.

1021

Goiter; An Analysis of 137 Cases. C. N. Dowd, *Jour. Amer. Med. Assn.*, Feb. 12, 1916.

For mildly toxic patients operation is very satisfactory and when the toxic symptoms develop in connection with free existing goiter, cure is almost certain. When they develop in the early stages of the growth, cure is usually obtained but cannot be so confidently predicted. The operation may be by partial thyroidectomy, cyst enucleation, artery ligation or boiling water injection, according to the case. Advanced exophthalmic goiter presents the most difficult problems. Many elements must be considered, including the complex nature of the ductless glands, their interrelations and chemical influences from other parts of the body and the various therapeutic measures which interrupt this vicious chain of disturbance. The hyperplastic thyroid seems to cause many of the symptoms and is the organ most easily attacked. The treatment consists largely in the endeavor to control its overactivity. Rest is an important element. Boiling water injections have an undoubted influence, and can be used for patients too ill for other measures. The ligation of the thy-

roid arteries is also beneficial and can be used as a preliminary measure or substitute for hemithyroidectomy. Partial excision of the gland must be considered a most reliable therapeutic measure, but the administration of drugs and the animal extracts may be beneficial. A choice of method should depend on the condition of the patient and, if rightly made, nearly all the patients can be improved. ED.

1022

Roentgen Exposures in the Treatment of Exophthalmic Goiter. J. F. FISCHER, *Ugeskrift for Laeger*, Oct. 5, 1916.

The author remarks that Roentgenotherapy seems to be far more effectual than all other measures combined, except the operative, in the treatment of exophthalmic goiter. Assuming that this disease is the result of excessive thyroid secretion it seems logical because the Roentgen rays have a destructive action on the gland. Furthermore, Roentgenotherapy is comparatively harmless, while operative measures show a mortality of 5.4 per cent (Bruno-Glaserfeld) or 6 per cent (Hildebrand). Fischer has treated by Roentgenotherapy 94 exophthalmic goiter patients, and 37 were simple goiter. Ages, 14 to 67. Only two in the Basedow group were men. As a rule the affection was of from one to four years standing. A complete subsidence of all objective and subjective signs and symptoms of the exophthalmic goiter was realized in 15 cases. The thyroid subsided to normal size in twenty-two, but in fully two-thirds of the cases it became much reduced in size. The exophthalmos was the most refractory symptoms, subsiding completely in five and showing improvement in eighteen. ED.

1032

The Cerebral Nerve Disturbances in Exophthalmic Goiter. G. J. HEUER, *Amer. Jour. Med. Sciences*, March, 1916.

A young physician, 23 years old, of nervous temperament and a history of several recurrent attacks of vomiting without nausea and occasional diarrhea over a period of some years, was admitted to the hospital suffering with well marked Basedow's disease. He presented on examination the classical symptoms; drooping lids, protruding fixed eyes, mask-like face, open mouth and hanging jaw, with extreme exophthalmos, greatly enlarged thyroid and a moderate tachycardia.

Examination of the cerebral nerves revealed the following: Smell and taste fairly normal. Complete bilateral ptosis of the eyelids, complete paralysis of the third, fourth and sixth cerebral nerves. The sensory part of the fifth nerve seemed unimpaired, but the motor part was markedly involved, the open mouth and hanging jaw being apparently due to weakness of the muscles supplied by that nerve. Seventh nerve: Facial weakness manifest on both sides. Eighth nerve: No disturbance of hearing. The dyspnea, marked difficulty in swallowing and regurgitation, together with other signs, gave clear evidence of bulbar paralysis.

The patient at first refused, but finally consented to operation, which, on account of his serious condition, was limited to ligation of the superior thyroid arteries. He died the day after operation. No autopsy was obtained. ED.

1036

Results of Operations for Exophthalmic Goiter. E. S. JUDD and J. S. PEMBERTON, *Surg., Gyn. and Obstet.*, March, 1916.

The first change noted as a rule is in the subjective symptoms. Many patients will state of their own accord and within two or three days, even before the pulse has changed much in frequency, that the feeling of pounding of the pulse in the precordium and head has been very materially lessened.

Exophthalmos as an objective symptom, though improved, has not in any of the cases totally disappeared but the patients in a short time may feel much less fulness in the eyes and feeling of protrusion.

Gain of weight has begun in a few weeks and has often been very marked. A girl of fourteen increased in weight from eighty-nine pounds to one hundred and fifteen pounds in the first few weeks. Usually the excessive early gain in weight has not been maintained but the weight remains at a point above that before operation.

Some of the symptoms are more directly traceable to the excess of thyroid secretion in the blood than others. These may be expected as a rule to show very considerable improvement. The improvement in exophthalmos and nervous control is much less marked. Most of the patients still have a pretty unstable nervous makeup. They are easily moved to tears and are much more easily upset by family quarrels or business troubles than the average person, even though their other signs of hyperthyroidism have disappeared. Physical strength is often remarkably restored in striking contrast to the nervous control. ED.

1037

Goiter and Melancholia. B. D. G. KAPPENBURG, *Nederl. Tydschr. voor Geneeskunde*, Sept. 30, 1916.

Of the fifty-six persons with goiter at the Utrecht Hospital 20 per cent presented more or less pronounced mental impairment, while only 4.4 per cent of 437 other inmates showed any mental derangement. Of the 20 per cent nearly all were of the melancholic types of psychoses. ED.

1040

Recent Advances in Our Knowledge of the Active Constituent in the Thyroid: Its Clinical Nature and Functions. EDWARD C. KENDALL, *Boston Med. and Surg. Jour.*, Oct. 19, 1916.

The author refers to the crystalline substance isolated by him. This is a 60 per cent iodine compound which, when administered in small quantity in cases of cretinism and myxedema, gave results entirely equal to that of thyroid extract. In large doses, however, it gives rise to toxic symptoms simulating exophthalmic goiter. The effect of the compound does not make its appearance until several hours after its administration. There is no fall in blood pressure or increase in the pulse rate, except if amino-acids are injected simultaneously. ED.

1048

Exophthalmic Goiter. H. MACKENZIE, *Lancet*, Nov. 11, 1916.

The author believes that 25 per cent of all cases of Graves' disease terminate fatally; 50 per cent under ordinary medical treatment attain more or less complete recovery in the milder types of disease, and in

the remainder the disease is chronic. As to the value of various remedies in goiter, bromides proved useful where nervous symptoms were only marked; belladonna seemed to quiet the heart and nervous system; calcium salts and phosphates were found to be beneficial when there was progressive loss of weight. The author's experience with operative treatment has been unfavorable. Fifteen cases in which ligation was performed gave a mortality of 20 per cent, and nineteen cases in which thyroidectomy was performed gave a mortality of 42 per cent. ED.

1054

Exophthalmic Goiter. A. J. OCHSNER, *Annals Surgery*, Oct., 1916.

The author considers that surgical treatment of exophthalmic goiter begins after it has been established that medical treatment cannot permanently cure the patient. He believes that thyroid extract, digitalis, and iodine should never be used in the medical treatment of the disease. He believes he has seen deaths directly attributable to the use of each of these drugs.

When operation is decided upon, selection of the proper time to operate is of the utmost importance. Operation is never advisable during exacerbation, and an operation should not be undertaken if the patient expresses fear of it. The amount of surgery done at one sitting should be limited to the amount of surgery the operator deems safe for the patient, which varies from ligation of one vessel to double lobectomy. The author prefers the regular horseshoe incision even for ligation of vessels, as it permits ligation of the anterior thyroid veins in addition to ligation of both superior and inferior thyroid arteries on the side of the gland most affected. The injection of boiling water into the gland of patients too severely toxic to stand even a ligation has proved valuable in the limited number of cases where tried. No matter what the preliminary operation, the patient should receive the same careful after-care as though the radical operation had been performed; the latter should always be done when the patient has received the maximum benefit from the preliminary operation and should never be omitted because of an apparent cure.

Ochsner believes that the margin of safety for the excision of the gland can be enormously widened by a transfusion of 400 to 600 ccm. of blood at the beginning of the operation. In regard to anesthetics, he believes that ether by the open drop method is the only safe method for general use. Morphine and atropine are given one-half hour before the anesthetic. The patient is fully anesthetized, the head of the table raised, and no more anesthetic is given after the operation is started. Before the patient is returned to bed, if there have been marked symptoms of hyperthyroidism, stomach lavage with water at 110° F. is performed to eliminate mucus in the stomach, which the author believes is a predisposing factor in postoperative hyperthyroidism. Local anesthesia—0.5 per cent novocaine plus adrenalin—will entirely eliminate the danger of the anesthesia. It also limits trauma to the minimum. Hemorrhage should be prevented by clamping all vessels between two forceps before cutting. The wound should be drained.

Injury to the recurrent laryngeal nerve and to the parathyroids can certainly be avoided by ligating the inferior thyroid arteries anterior to the posterior thyroid capsule, the latter being allowed to remain undisturbed in its relation to the trachea. ED.

1055

Some Functions of the Thyroid and Their Relationship to Goiter. SYDNEY PERN, *Med. Jour. of Australia*, June 17, 1916.

The author first discusses the hyperactivity of the thyroid which takes place in the presence of toxemia or a focus of infection in some part of the body. In thyrotoxic goiters infections have been found in the tonsils, nasal accessory sinuses or teeth. He believes that in the large majority of goiters some focal infection is present and he has found that when the infective foci is located and removed the thyroid responds to medical treatment. In fact in his own cases he has not had to remove a single gland. He then discusses the vaso-dilatory function of the thyroid and finally the influence of this gland on calcium salts metabolism (this function being shared by the parathyroids). Insufficiency of lime salts leads to goiter. ED.

1058

Treatment of Exophthalmic Goiter by the Roentgen Rays. G. E. PFAHLER and J. D. ZULICK, *American Jour. Roentgenol.*, Feb., 1916.

When the x-ray treatment is used the pulse rate will show a reduction in nearly all cases. Next to this the weight shows a marked increase. The sleeplessness, excitability and headache all show early improvement. The exophthalmos shows improvement in 50 per cent of the cases treated. The size of the goiter is diminished in 20 per cent of cases.

Since the thymus gland is enlarged in 50 to 90 per cent of cases it is best to treat this gland in addition to the goiter applications.

The effect of the rays on the enlarged thymus is prompt and effective. At no time should the dosage be carried to the extent of reddening the skin.

With a Coolidge tube, a spark gap of 9 inches, 5 milliamperes of current for five minutes is a dose. The series of doses should not be repeated within three or four weeks. ED.

1061

Surgery of the Thyroid Gland. C. A. PORTER, *Boston Med. and Surg. Jour.*, Oct. 19, 1916.

An analysis is made of 185 cases. In the author's opinion partial lobectomy is a more severe and bloody operation than hemithyroidectomy, but he feels that it is followed by more immediate improvement and that the danger of recurrence is less. Of these 85 cases operated upon 20 are absolutely cured, 18 much improved, 4 not improved, and requiring further operation; 16 have not reported. ED.

1062

The Surgical Treatment of Goiter. MILES F. PORTER, *Annals of Surgery*, Oct., 1916.

The author discusses the question of how to improve upon the results achieved in the surgical treatment of goiter and states that there are three sources of dissatisfaction following thyroidectomy: (1) Failure to get relief from the symptoms although there is no recurrence of the goiter; (2) the immediate mortality is too high; (3) too many cases are seen which have gone beyond the point where the question of surgical relief can be entertained with reason.

The first cause of failure or partial failure can be avoided quite often by making a liberal incision and exposing the whole gland before commencing its removal. Perhaps in the majority of cases, by careful examination of the gland after uncovering it, it is possible to distinguish the hyperactive or toxic portions of the gland from the normal portions (the former are lighter in color, yellowish white rather than red and not so firm as the normal gland structure) and all the pathological tissue should be removed.

The immediate mortality of operation can be reduced by substituting boiling water injections into the gland for ligation as a preliminary to thyroidectomy in serious cases and by using the injections to the exclusion of all other methods in mild cases with little or no enlargement of the thyroid and in extremely serious cases. There is a so-called inevitable mortality but this could be reduced by removing all simple goiters before they become toxic or malignant. ED.

1071

Roentgen Treatment of Exophthalmic Goiter. C. A. SIMPSON, *Southern Med. Jour.*, Oct., 1916.

A large percentage of cases of exophthalmic goiter are associated with enlarged thymus which many surgeons, to avoid dangerous post-operative symptoms and even death, advise resecting at the same time the thyroid is removed. This must greatly prolong and complicate the operation of thyroidectomy in patients generally regarded as bad operative risks. The Roentgen ray will quickly and painlessly atrophy the thymus and for this reason should be the method of choice in all cases of exophthalmic goiter where enlarged thymus is suspected. ED.

1087

Treatment of Otomycosis. H. P. BELLOWS, *Jour. Ophthal., Otol. and Laryngol.*, Sept., 1916.

There are four objects to be attained in treatment: (1) to properly cleanse the external canal and drum head; (2) to reduce the local inflammation; (3) to effectively destroy all the parasitic germs present; (4) to prevent recurrence. To meet all these essentials the author outlines the following treatment: Removal of the growth thoroughly by means of blunt ring curette and, if necessary, gentle syringing and drying with absorbent cotton. Application of hydrogen peroxide, full strength, for five minutes (filling the ear with it if there is no perforation). To reduce the inflammation the author gives belladonna internally. To destroy the parasitic germs peroxide irrigations followed by saturated boric acid solution in 50 per cent alcohol, night and morning, for several days are advised. To prevent recurrence absolute dryness is essential (dusting powder). ED.

1094

Case of Herpes Zoster Oticus. ARCHER RYLAND, *Jour. Laryngol., Rhinol. and Otol.*, Dec., 1916.

The patient complained of the following symptoms: pain in the left ear, aching pain and swelling of the left ear itself, slight deafness in left ear but no discharge, weakness of the left side of face, pain on swallowing and soreness in left side of throat, weakness and watering of left

eye, giddiness and nausea and vomiting. In the first few days of the disease prostration was great and the clinical picture as can be seen from the symptomatology, resembled an intracranial complication. The duration of the herpes (which was the decisive factor in the diagnosis) was eight days. It had an auriculo-temporal distribution. Throughout the attack the temperature was subnormal and the pulse slow. Leucocyte count normal; spinal fluid normal. ED.

1095

Diffuse External Otitis. C. A. TORRIGIANI, *Arch. ital. di Otol., Rinol. e Laringol.*, Oct., 1916.

This article deals with artificially induced external otitis and details four cases in soldiers who in order to be placed on the sick list rubbed various varieties of euphorbia on their ears. The intensity of the inflammation will depend upon the duration of application of the plant. The various stages of the evolution of the inflammation may be divided into (1) erythematous edema; (2) vesicular stage; (3) eczematous stage; (4) ulcerative stage. Treatment consisted of applications of bland salves and complete cure resulted in several days. ED.

1098

The Discharging Ear. ALBERT BARDES, *Medical Record*, Sept. 30, 1916.

Practically all middle ear infections start in the nasal chambers following grippe, tonsillitis, scarlatina, and measles. Surf bathing and the promiscuous nasal douche also cause many infections of the middle ear. Infants are very susceptible to such involvement, owing to the nearness of the middle ear to the posterior nares. Scarlatina is the most destructive infection to the ear in child life. The author states that twenty per cent of all deaf mutes, and a great proportion of other persons with disabled ears owe their misfortune to that disease.

In discussing treatment, the author thinks it far better to open the membrane prematurely than to allow infection to spread. The usual forms of therapeutics are advised. Never should the drum be incised without an anesthetic. The internal Wilde incision is recommended. In chronic suppuration, the Schwartze operation is advised, as the Stacke method leaves the hearing much disturbed. M. D. LEDERMAN.

1101

Chronic Suppurative Otitis Media. A Modified Radical Operation. HUGH B. BLACKWELL, *New York Med. Jour.*, August 26, 1916.

Usual incision as in Stacke operation. Soft parts elevated and retracted. The antrum is opened, and the posterior bony canal wall is lowered until the facial ridge is reached, leaving only an epitympanic ring in the superior portion, the membrana tympani and the ossicles are left intact. The wound is packed and closed as in the radical operation by cutting a flap.

The purpose of this operation is to stop the discharge, and to conserve, or, if possible, to improve the hearing. In a series of sixteen cases, eight resulted in dry ears, and eight were intermittently dry. An interesting feature is the development of a secondary tympanic membrane.

FRANCIS R. PACKARD.

1103

Perforations of Shrapnell's Membrane. J. V. E. CLAY, *Jour. Ophthal., Otol. and Laryngol.*, March, 1916.

Perforations of Shrapnell's membrane are considered by some otologists as invariably indicating necrosis. From clinical observations the author concludes that perforations of Shrapnell's membrane may be classified as those associated with chronic tubo-tympanic obstructive lesions and those belonging to the chronic suppurative class. The perforations due to obstructive tubo-tympanic disease may become suppurative through subsequent infection. It is interesting to note that in many cases of suppurative lesions there is an absence of a history of acute aural suppuration. The author does not believe that all cases of perforations of Shrapnell's membrane spells necrosis. Careful removal of crusts and simple cleanliness will sometimes cause covering of the perforation by epithelium. Ossiculectomy should be practiced only if it can be proven that necrosis is confined to the ossicles. Where there is evidence of necrosis in the attic the radical mastoid should be performed. ED.

1104

Vaccine Treatment of Chronic Suppurative Otitis Media. G. M. COATES and M. S. ERSNER, *Pennsylvania Med. Jour.*, May, 1916.

The authors' report is based on a series of 50 cases treated with autogenous vaccines, as well as the results in 21 of the cases of complement-fixation tests, 21 Wassermann reactions and 25 von Pirquets. All of the 50 cases were of the pronounced chronic type. A cessation of the discharge was obtained in 46 per cent. The technique of taking cultures for vaccine preparation was to cleanse the middle ear and canal as thoroughly as possible with cotton swabs or by suction; fill the canal with alcohol for ten minutes; remove and dry by evaporation for fifteen minutes. Then by inflation or by suction a drop of pus was obtained on a sterile platinum loop inserted through a sterile speculum. While vaccine therapy will permanently stop the discharge in a good many of the chronic cases, those showing bony encrosis, cholesteatoma and possibly labyrinth suppuration would not yield good results. ED.

1105

Final Report on the Isolation and Cultivation of the Tubercle Bacillus from the Discharging Ear in Cases of Chronic Purulent Otitis Media. G. H. COCKS and J. G. DWYER, *Jour. Laryngol., Rhinol. and Otol.*, July, 1916.

The technique employed is as follows: A solution of 3 per cent sodium hydrate is used to wash the discharge from the ear or mastoid wound. This discharge is then allowed to stand in a sterile flask in an incubator for one to three hours, being shaken at intervals. When the flakes of mucus have been dissolved the mixture is thoroughly centrifugalized and the supernatant fluid poured off. The precipitate is neutralized with normal hydrochloric acid, using litmus as an indicator. The residue is then inoculated into a series of Miller's culture media (extract of glands, spleen and lymphatic tissue of laboratory animals). Growth takes place, if tubercle bacilli are present, in from ten to twenty days. Subcultures are then made. This method is used by the authors in the late cases.

For the early cases they use the anti-formin method in conjunction with Petroff's medium.

The authors report on fifteen cases (with synopsis) proved by culture and smears from the aural discharge to be tuberculous and one case which proved to be tuberculosis of the antrum of Highmore. In another series of thirty-two children, ranging in age from ten months to fifteen years, presenting aural discharge, five showed positive cultures showing, in accordance with previous figures compiled by the authors that 15.6 per cent of all chronic purulent otitis media in childhood are tuberculous. ED.

1108

Aural Complications of Grippe. EDWARD B. DENCH, *New York Med. Jour.*, Dec. 16, 1916.

The author brings out the following points: (1) Aural complications of influenza are severe chiefly from the fact that the constitutional infection lowers the general bodily resistance. (2) The hemorrhagic type of inflammation, both in the middle ear and in the mastoid process, occurs probably more frequently as a complication of influenza than other constitutional diseases. (3) Operative interference in these cases must depend upon the otoscopic appearances and the local symptoms. In other words, the actual lesion determines the surgical interference.

So far as the bacteriology of the condition is concerned, the author states that he has yet to see a single case of mastoiditis or a single case of middle ear infection due to the specific organism of influenza. In cases of so-called influenza otitis the infecting organism is almost always a streptococcus. ED.

1111

A Factor in the Prognosis of Acute Suppuration of the Middle Ear. F. F. FRANCHERE, *Annals Otol., Rhinol. and Laryngol.*, Dec., 1916.

Besides the powers of resistance of the patient, the severity of the infection and the question of adequate drainage the author points out that there is another factor concerned in the prognosis of middle ear suppuration, namely, the anatomic structure of the mastoid cells. The chances for complications are greater where the cells are larger than where they are small and of uniform size. ED.

1118

Note on the Value of Hexamine in Aural Suppuration and Meningitis. D. GUTHRIE, *British Med. Jour.*, Sept. 30, 1916.

The drug has no value in these conditions. In four cases of chronic otitis media where the author administered the drug in large doses, and in two cases of meningitis, the secretions and the spinal fluid respectively were entirely free from either hexamine or formaldehyde. ED.

1119

Tuberculosis of the Middle Ear. H. B. GRAHAM, *Annals Otol., Rhinol. and Laryngol.*, March, 1916.

During the past four years the author has studied nine cases of middle ear tuberculosis, the diagnosis being based upon the clinical histories and examinations, pathological sections, presence of tubercle bacilli in the discharge and by animal experimentation. In a general way the

clinical picture may depend upon the anatomical part involved (mucous membrane, drum, bone) but the process may be more or less general throughout the middle ear and may be classified into the following varieties:

(a) *Lupoid.* This occurs in adults, extends over a long period of time and is marked by repeated exacerbations. In early cases the discharge is pronounced during the attacks; hearing is decidedly impaired but returns upon subsidence of the discharge. In late cases the discharge is scanty. There is frequent destruction of the labyrinth in these cases.

(b) *Infiltrating.* Clinically these cases are sub-acute, leading to early perforation of the drum. As a rule there is deafness due to thickening of the mucous membrane and to labyrinthine degeneration.

(c) *Fungoid.* There is much granulation tissue produced in the middle ear and mastoid without bony change and with small amount of discharge. Often the process may be confined to the mastoid alone, the middle ear being free.

(d) *Necrotic.* Most often attacks adults. Pus formation is often profuse and the antrum is filled with caseous material and sequestra floating in pus. The middle ear is lined with small, flat granulations in the form of polypi.

(e) *Fibrinoid.* This is the rarest form and is characterized by a thick, dry, whitish deposit on the promontory wall under which lies a granulating bony surface.

(f) *Myringitis of Moller.* This is a type of the infiltrating variety.

ED.

1123

Treatment of Exudative Middle Ear Catarrh. JACOB B. HEIDENREICH, *Nordisk Tidskrift for Oto-Rhino-Laryngol.*, Nos. 2, 3 and 4, 1916.

The author disputes the opinion held by some that a serous exudate from the tympanic cavity will undergo spontaneous absorption. Further the differential diagnosis between serous and mucous exudate is rather difficult. Every case of middle ear exudate, whether serous or mucous, small in quantity or large, acute or chronic, should be subjected to paracentesis and the middle ear cavity blown out with air. Only through such measures are favorable results to be obtained. ED.

1129

Injection of the Gasserian Ganglion Through the Foramen Ovale. H. H. MARTIN, *Southern Med. Jour.*, July, 1916.

The author states that the operation has reached beyond the experimental stage and will eventually supersede the extirpation of the ganglion, division of the sensory root, peripheral and nerve trunk injection. Certain accidents must be guarded against as the needle will pass near the internal maxillary artery which lies close to the inferior maxillary nerve in the spheno-maxillary fossa and sends a small branch through the foramen ovale. If the needle is improperly directed it may enter the foramen spinosum, the jugular foramen or an emissary vein (Civinini) just below the foramen ovale, or the internal caritid or cavernous sinus might be injured. Hence, the operation demands a thorough knowledge of the anatomy of the parts and considerable surgical dexterity. ED.

1131

Acute Middle Ear Suppuration. JOHN J. O'BRIEN, *New York Med. Jour.*, Sept. 30, 1916.

The author calls attention to the frequency during the past winter of acute otitis media following grippe. He points out the importance of routine examination of the ear in these cases, and the early incision of the drum to prevent the complications of mastoiditis, meningeal, cerebral and cerebellar, and vestibular complications that may follow its neglect.

FRANCIS R. PACKARD.

1135

Lesions of the Middle Ear from Aerial Commotion. A. SAUPIQUET, *Rev. de Laryngol., d' Otol. et de Rhinal.*, No. 24, Dec. 31, 1916.

The only point about the large number of cases of auditory lesions from shell explosions, etc., noted by the author was the relatively small proportion of lesions of the middle ear. Of 164 cases of ear disease produced by commotion only 26 were instances of commotion of the labyrinth associated or not with lesions of the middle ear. The affections of the middle ear produced by commotion are divided by Saupiquet into three classes:

Class 1. Twenty-four cases. Perforation of the drum of various size, always with more or less ragged edges. More or less free bleeding. Condition tended to cure without infection of the middle ear, the lesions gradually cicatrizing, if the membrane was not too extensively destroyed. If middle ear infection occurred the otorrhea made its appearance within the first two or three days. Sometimes it was a mucous or muco-purulent oozing, at other times a true purulent otitis. Of the twenty-four cases observed eighteen showed this suppuration.

Class 2. Thirty-two cases. The lesion first seen was not a perforation but a simple attrition of the tympanic membrane. At the first examination there was slight intratympanic hemorrhage, often along the handle of the malleus, sometimes at the level of Shrapnell's membrane; in some cases there was a small hematoma. This hemorrhagic lesion gradually disappeared and in a few days the drum head was normal, or it might be transformed into a perforation, depending upon the depth of the attrition and the mortification of the tissues. The author noticed secondary perforation in twenty cases. The time of appearance varied from three or four days to a fortnight after the injury. The appearance of the secondary perforation differs from primary perforation in that the opening is not a tear or bursting of the membrane, but is a thin sharp-edged lenticular perforation. This perforation may cicatrize without suppuration or a purulent otitis media may develop. The tendency towards cure is greater in the secondary than in the primary perforations.

Class 3. Cases in which a purulent traumatic otitis media comes on suddenly.

ED.

1141

A Fatality Following Acute Otitis Media. IRVING W. VOORHEES, *Medical Record*, Sept. 23, 1916.

The patient died suddenly and the consensus of diagnostic opinion was: mastoiditis, brain abscess, rupture into the lateral ventricle. The author

publishes the case because of the following conclusions: 1. Any apparently "simple" acute otitis media is capable of producing dire results. 2. The appearance of the drum may be very misleading. Behind it may be lurking the deadly streptococcus mucosus. 3. A culture should be taken in every case and the predominant germ identified if possible. 4. Any abrupt cessation of discharge accompanied by a severe unilateral headache is an unfailing sign of some complication calling for operation. 5. No patient with an acute otitis should be allowed to get away from the observation of a trained otologist until all symptoms have disappeared and a condition of restitutio ad integram has been obtained.

ED.

1145

Massage of the Eustachian Tube. ALFRED LEWY, *Annals Otol., Rhinol. and Laryngol.*, Dec., 1916.

The technique is that described by Mink. A nasal applicator is curved to about the same degree as an Eustachian catheter, but a shorter segment of curve is used. A number of different lengths of curve are necessary to fit septal deviations and various anatomic conditions. The cotton is best folded on itself and wound around the carrier so as to form a thick ball rather than a brush to avoid trauma. After cocainizing the region of the mouth of the tube, the cotton-wound applicator is passed back to the posterior wall of the pharynx, swept upward in the fossa of Rosenmueller, brought forward over the mouth of the tube and immediately downward and back under the mouth of the tube. This motion is repeated about twenty times or as often as the operator's judgment indicates.

The results obtained by the author have been very satisfactory in cases of tubal catarrh and in acute and chronic otitis media. No special results have been obtained in the treatment of tinnitus. ED.

1147

Hereditary Syphilis of the Internal Ear. OSCAR BECK, *Medizinische Klinik*, No. 12, 1916.

Beck distinguished the following main types: 1. Isolated involvement of the acoustic apparatus; 2. Simultaneous involvement of the cochlear and vestibular apparatus; 3. Involvement of the static labyrinth alone. He takes up only the first type of the disease, the frequency of which amounts to 20-30 per cent in hereditary syphilitic children. Three forms are described according to symptomatology. 1. *The apoplectiform*, in which the onset of the deafness is very sudden, sometimes over night, the static function remaining undisturbed. The usual age of recurrence is the tenth year. Prognosis is absolutely unfavorable. 2. *Insidious form*, the age of occurrence being about the same as in the apoplectiform, often associated with Hutchinson's triad. 3. In this form subjective noises are most prominent, the hearing capacity apparently remaining unimpaired.

The author also points out various analogies between the clinical symptoms and anatomical findings in otosclerosis and hereditary syphilis, but of course, there are essential differences.

The pathologico-anatomical processes in hereditary syphilitic disease of the internal ear are (1) degenerative inflammation of the acoustic nerve;

(2) secondary inflammatory processes of the acoustic nerve; (3) periostitic process in the labyrinth capsule with endolabyrinthine changes. Ed.

1150

Labyrinthine Inflammation Secondary to Chronic Purulent Otitis Media. Charles B. Broder, *New York Med. Jour.*, Oct. 7, 1916.

The anatomy of the middle ear and of its contiguous structure show the dangers of a chronic discharging ear. The inflammation may spread readily, especially if drainage is interfered with. Infection may reach the labyrinth by the way of the oval or round window through a fistula of one of the semicircular canals, or a fistula of the promontory. Sometimes it may remain localized in the labyrinth, or cerebral or cerebellar abscess, meningitis or thrombosis may complicate the condition. An early radical mastoid will often prevent these complications.

Francis R. Packard.

1156

Labyrinthitis; Report of Cases in Acute Suppurative Otitis Media and After Operations. D. M. Campbell, *Jour. Michigan State Med. Soc.*, p. 481, 1916.

The author reports two cases of serous labyrinthitis complicating acute suppurative otitis media, both relieved by simple mastoid operation, and one case of diffuse serous secondary labyrinthitis developing the thirty-sixth day following a simple mastoid operation relieved by a radical tympano-mastoid exenteration. Two cases developed symptoms of labyrinth disturbance upon recovery from the anesthetic following the radical tympano-mastoid exenteration, both of which showed improvement from day to day so no further surgical interference was necessary.

The diagnosis of purulent manifest labyrinthitis should be made by the entire absence of all labyrinthic reactions and should be promptly drained in acute cases and in chronic cases as part of the radical operation in the presence of a dead labyrinth. Ed.

1160

Orientation and Equilibration. Dr. Arthur B. Duel, *New York Med. Jour.*, March 25, 1916.

The author states that the eighth nerve—the auditory—should be described anatomically and physiologically as the nerve of hearing only, with its end organ the cochlea. The vestibular branch should be given a place by itself and should be described as the nerve of orientation only, with its end organ the vestibule and semicircular canals. Anatomical evidence shows that the distribution of the vestibular and auditory fibers is to entirely different centers. A normal child of seven or eight years has unconsciously acquired a sense of orientation and a power of equilibration, by an adjustment of muscles and joints, which in magnitude far exceeds that acquired in later years, by practice and training for the most difficult pursuits. The sense of position in space (orientation) and adjustment to it is more important than any other function in the struggle for existence. In the simplest forms of phylla, in certain jelly fish, a stiffened tentacle which has acquired a considerable degree of inertia furnishes the organism with its knowledge of position. Progressing a little further to a higher order, we have a modified mechanism, an

otolithic apparatus made up of calcareous particles, more or less freely suspended and which are by gravitation responsive to movement. As evolution progresses we have in the higher forms a comparatively elaborate mechanism, the otolith being suspended in a specially formed cavity and surrounded by fluid. Progressing to the highest orders impulses are received by the medulla and pons through sensory nerves from the eyes, semicircular canals, the joints, muscle and skin and relayed through the interior cerebellar peduncle to the cerebellum. From here impulses are sent out to the red nucleus and from the red nucleus through the rubrospinal tract to the anterior horn cells and from here through the motor nerves to the muscles of the trunk, head and eyes. Other impulses from the cerebellum reach the same distribution by passing through the uncinate tract through Deiter's nucleus and through the Deiterospinal tract into the anterior horn cells. Of all the sensory end organs, however, the vestibular apparatus is the most essential factor in the sense of orientation. Furthermore, binaural hearing is as essential to judging the direction of sound as binocular vision is essential to perfect judgment of distance. ED.

1164

A Translabyrinthine Operated Case of Acoustic Tumor. ARTHUR AF FORSELLES, *Nordisk Tidskrift for Oto-Rhino-Laryngol.*, Bd. 1, No. 1, p. 29, 1916.

Patient, male, 40 years old. For three months right sided headache, later vertigo, loss of acuity of vision, deafness and vomiting. Wassermann negative. No disturbances of the olfactory, trochlear, vagus or accessory nerves. Pupils normal. Hyperesthesia of sensory branch of trigemius on diseased side. Right ear deaf. Abducens and facial nerves paretic. Spontaneous, horizontal nystagmus both sides, more pronounced on looking towards the right. Labyrinth calorically and galvanically not excitable. Gait unsteady, tendency towards right; falling direction towards right; protrusion of tongue towards right. Tumor removed by translabyrintine operation proved on examination to be a fibroma. No evidence of recurrence two years after operation. ED.

1167

Pathology of Otosclerosis. J. S. FRASER and R. MUIR, *Jour. Laryngol., Rhinol. and Otol.*, Nov., 1916.

This article is a most excellent and detailed review of our present knowledge of otosclerosis, histo-pathologically and clinically. The conclusions are: (1) Some cases of otosclerosis (spongification of the labyrinth capsule) appear to be of the nature of a blood infection and may be called "primary." We would expect that further research would show that in these cases the bony changes are widespread throughout the skeleton. (2) Other cases of otosclerosis undoubtedly follow attacks of catarrhal or purulent otitis media, the infecting process invading the labyrinth capsule at the anterior margin of the oval window. Such cases may be called "secondary." (3) From the clinical standpoint heredity plays an important part in otosclerosis but, as the condition is chronic, inflammatory process, the infective agent must gain access to the labyrinth capsule either through the blood-stream or from the middle ear

cleft. (4) It has been proved by clinical and microscopical research that "atypical" cases of otosclerosis exist in which functional examination of the ear reveals the presence of nerve deafness. The relationship between the bony changes and the nervous affection is not yet clear. ED.

1177

Involvement of the Internal Ear in Epidemic Parotitis. C. HEILSKOV, *Nordisk Tidskrift for Oto-Rhino-Laryngol.*, Nos. 2, 3 and 4, 1916.

Three cases, in all of which the symptom complex pointed to an endolabyrinthine affection—a diffuse labyrinthitis in the first case, a circumscribed labyrinthitis in the second case and a serous labyrinthitis in the third case. The ages of the patients were 22, 16 and 36 years, respectively. ED.

1183

A Case of Polyneuritis Cerebralis Menieriformis. HANS KEY-ABERG, *Oto-Laryngologiska Meddelanden*, Bd. 2, H. 2, p. 387, Aug., 1916.

A girl, 20 years old, a laundress by occupation, suddenly became ill with vertigo, headache, vomiting and the development of facial paralysis. Otological examination showed retraction of both drum membranes and impaired hearing on the right. Examination of the vestibular apparatus showed rotatory, caloric and galvanic tests normal, or at least a slightly increased irritability. Wassermann negative; x-ray negative. One month after the onset of the illness the impaired hearing had disappeared, and the facial paralysis had also disappeared. This case differs from those described by Thornval in that it was entirely cochlear while Thornval's were vestibular and cochlear. ED.

1189

Cerebellar Localization; An Experimental Study by a New Method. I. LEON MEYERS, *Jour. Amer. Med. Assn.*, Dec. 9, 1916.

Meyers goes at length into the description of his method of experimenting with the centers of the cerebellum by excitation with oil of absinthe, which has a peculiar influence on these centers, and he describes the myograms of the absinthe convulsions at length, and with myograms. His conclusions from these are given as follows: "1. The function of the cerebellum is to inhibit, control and regulate the activity of the motor cortex of the cerebrum and the paracerebellar nuclei in the medulla. 2. The phenomena of cerebellar deficiency are, accordingly, to be interpreted as phenomena of hyperfunctional and not hypofunctional activity. 3. The cerebellum is functionally differentiated for the various muscle groups of the body, indirectly, by being primarily related through its various lobules to the various motor centers in the cerebrum and the tonus centers in the medulla, just as a posterior root ganglion is, in a motor sense, related to a certain muscle complex through its corresponding group of motor cells in the anterior horn of the cord. 4. The paramedian lobule is, in this manner, related to its homolateral hindlimb, and probably also to the contralateral hindlimb; the crus secundum to the homolateral hindlimb, very likely, exclusively, and the crus primum to the homolateral forelimb. 5. These results are in general in conformity with the theory of cerebellar localization as postulated by Bolk. They differ from it only as regards the paramedian lobule,

which Bolk assumed was the center for unilateral movements of the muscles of the trunk." Meyers makes the suggestion that these experiments may possibly have a diagnostic significance in suspected cases of cerebellar diesases and the administration within physiologic limits, as was done, might make certain evidences of cerebellar deficiency more obvious in suspected cases, and also aid in the location of the lesion.

ED.

1190

Tests by Barany Methods Demonstrating Neuraxial Differentiation of the Fibers from the Vertical Semicircular Canals. C. K. MILLS and I. H. JONES, *Jour. Amer. Med. Assn.*, Oct. 28, 1916.

The cause of vertigo has been somewhat of a perplexing problem at times. Whenever the primary lesion, the labyrinth and its associated pathways and brain centers are involved, the Barany tests furnish us the means for studying this vestibular apparatus, and also enable us to determine more positively where an intracranial lesion which may be involved is located. Cajal has shown that the fibers from the vestibular portion of the eighth nerve enter Deiters' nucleus and continue from the inferior cerebellar peduncle into the cerebellum itself. The authors believe that (1) this path includes the fibers from the horizontal semicircular canals exclusively, and (2) the fibers from the vertical canals have an entirely different course. The former are confined to the oblongata, while the latter ascend into the pons. The authors report in detail a case in which the Barany tests were used in which a tumor was found extending from the uppermost portions of the cerebral peduncles through the pons and into the cerebellar lobe on the left side, and comment in detail on the diagnostic points made with the tests. From the results they are confident that the fibers from the horizontal canal and the fibers from the vertical canals have separate pathways in the neuraxis. That the horizontal canal fibers are confined to the oblongata and enter the cerebellum through the inferior peduncle, and that the vertical canal fibers ascend into the pons and enter the cerebellum through the middle peduncle, they believe to be highly probable, but feel that evidence to date is insufficient to enable them to speak with confidence as to the exact course. ED.

1191

Test for Functional Capacity of the Vestibular Labyrinth. E. J. MOURE, *Bull. de l' Acad. de Med. de Paris*, April 11, 1916.

The individual with eyes shut and head bent forward turns five or six times around a pole or a cane. Then he opens his eyes and tries to walk forward in a straight line. The normal are unable to do this, always being propelled in the direction in which they have been turning, and sometimes falling in this direction. Those with impaired labyrinth are able to walk almost or quite straight after the rotary movement.

ED.

1198

Treatment of Labyrinthine Affections. W. C. PHILLIPS, *New York State Jour. Med.*, Aug., 1916.

Many cases of purulent labyrinthitis recover spontaneously even where a part or whole of the labyrinthine capsule becomes necrosed. Out of

36 cases there were 14 operations upon the labyrinth, 7 of which were for the removal of necrosis or sequestra in patients who had long since passed the acute stage of the disease. This leaves 7 operations for more or less acute labyrinthitis; there were 5 fatalities. Indications for operation depend upon the type of labyrinthine involvement. Non-suppurative cases resulting from parotitis, hemorrhage, epidemic cerebrospinal meningitis should never be subjected to operation. Neither should patients with serous labyrinthitis be operated on. In acute diffuse purulent labyrinthitis operation should be done even though meningeal symptoms have already appeared. Cases of so-called paralabyrinthitis should invariably be subjected to the radical mastoid operation. ED.

1199

Involvement of the Labyrinth by Way of the Ductus Endolymphaticus. NORVAL H. PIERCE, *Annals Otol., Rhinol. and Laryngol.*, Dec., 1916.

A case (two others are referred to) is reported of otitis media following grippe infection in which the labyrinth subsequently became involved by way of the endolymphatic duct. There was absence of swelling or pain in the mastoids and skiagraphs were negative. Both mastoids were, however, opened and a small amount of pus found in each. The labyrinth involvement occurred about one month later. The author emphasizes the following points: 1. The saccus endolymphaticus may be involved more frequently than is usually supposed in acute softening processes of the mastoid. 2. It is our duty in all cases of mastoid involvement without external manifestations except temperature, to very thoroughly search for softened areas deep down in the bone and not cease until we come to healthy structure. 3. We should always bear in mind in suppurative labyrinthitis not only to open into the bony labyrinth but to explore the region in which the saccus endolymphaticus is situated. 4. Within the first few days serous labyrinthitis cannot be differentiated from suppurative labyrinthitis. ED.

1201

The Ear Tests of Barany in Locating Cerebellar and Other Encephalic Lesions. DRS. B. A. RANDALL and I. H. JONES, *Amer. Jour. Med. Sc.*, April, 1916.

The authors have come to a definite conclusion that all pointing reactions are primarily *cerebral* and not cerebellar, as generally stated. When a person is tested and, for example, with erect head is turned to the right, he has, on stopping, a subjective sensation of turning to the left. For this reason he feels that he is leaving the finger of the examiner behind him and points to the right where he conceives the finger now to be. He deliberately points to the right unless by a non-automatic, calculated correction he overcomes the misconception of the position of the finger. If after the usual past-pointing the examiner's finger is moved out to meet that of the examined, who then repeats the test, he past-points almost as much farther to the right and would continue, perhaps, to the completion of an entire circle in his chase of the seemingly moving finger but for the limitations enforced by his seating. Yet if rotated and asked to make the same movements of the arm without any finger to touch he maintains it in the same body-plane with little

or no deviation, since he conceives his plane to rotate with his seemingly revolving body. There is, therefore, no cerebellar or automatic drawing of the arm to one side; the past-pointing is purely cerebal. Yet we have it achieved through the synergising action of the cerebellum. But the cerebral mandate is associated with cerebellar influence, the muscle-sense, arthrodial sense, tactile, auditory and visual impressions and memory. The movement is initiated by the cerebrum and whatever deviation occurs is because the ear-stimulus has given by artificial means a false conception of the position in space. The authors further offer two postulates: (1) that the subjective circuit is *through* the cerebellum to the higher centers; (2) that the fibers from the different semicircular canals have entirely *separate tracts* of their own and that there is a complete central differentiation for the different canals. ED.

1232

Lid Reflex as a Test for Deafness. F. GAULT, *Presse Med.*, Sept. 21, 1916.

Convinced that the ordinary subjective tests of hearing based on the patient's own statements were often unsatisfactory Gault decided upon the following test: The patient is so seated that he is unable to see a bicycle horn placed about six feet from him. The opposite ear from the one being tested is plugged with cotton. The horn is blown suddenly while the eyelids are watched under a magnifying lens. The sudden impression on the auditory nerve, in normal ears, has always been followed by a slight or marked orbicular contraction. In total organic deafness the test is negative. In neuropathic deafness following shell explosions some reaction could be obtained and when the patient was apprised of this rapid improvement in hearing was obtained. The method is a good means of eliminating malingerers. ED.

1241

How Can We Meet the Problem of the Deaf? HAROLD HAYS, *Jour. Ophthalmol. and Otolaryngol.*, Nov., 1916.

As regards the medical problem the author states that in years to come the treatment of deafness must be attempted along more rational lines. The otologist must understand that in the majority of cases he is dealing with a physical process and he must interpret the change which has taken place in each individual case and treat the case accordingly. Empirical methods of treatment such as continuous inflation by the Valsalva method or through the Eustachian catheter are things of the past. In meeting the problem of deafness and its prevention it is necessary that one go back to early childhood to correct conditions that frequently exist at that time and which are undiscovered. Many a child who is considered stupid in school is only stupid because he is unable to hear as well as other children. The examination of the ears is just as important as the examination of the eyes. Among the many causes in early life which lead towards progressive deafness may be mentioned acute suppurative conditions of the ears which have subsided, hypertrophied tonsils and adenoids, subacute and chronic infections of the nose and nasopharynx.

The physician's duty does not cease with the medical treatment of the condition. There is a vast social and economic problem and incidentally

an educational problem which must be met. To-day the education of the deaf is a problem that is receiving a great deal of consideration. The instruction of the deaf child should begin at the earliest possible moment. If he is taught properly the child learns to speak readily and very often becomes a proficient lip-reader. Instruction in lip-reading for adults is extremely important, and the author cites several cases of people incapacitated by their deafness who have been rehabilitated as useful members of society by means of lip-reading. ED.

1243

Re-education of the Ear with the Maurice Kinesiphone. GUNNAR HOLMGREN, *Nordisk Tidskrift for Oto-Rhino-Laryngol.*, Nos. 2, 3 and 4, 1916.

In the course of two years experiments were carried out as follows:

Otosclerosis, 70 cases; 6 benefited, 25 slightly benefited, 3 aggravated, the remainder, no change.

Deafness due to dry middle ear catarrh, 15 cases; 8 improved, one very strikingly.

Deafness resulting from suppurative otitis media, 25 cases; 11 improved.

Nerve deafness of indeterminate cause, 18 cases; 7 improved.

The author believes, accordingly, that the method has a certain value but in all cases it should be under the direct control of the otologist. ED.

1246

Prognosis of War Deafness Based on 1000 Cases. M. LANNOIS and F. CHAVANNE, *Lyon Medical*, Feb., 1916.

There was more or less total deafness in 645 of the 1000 soldiers and the deafness dated from a concussion of the internal ear without any direct traumatism to the ear. All but two per cent recovered and these were left permanently deaf in both ears. ED.

1248

Re-education in Traumatic Deafness by Training with the Vowel Siren. MARAGE, *Bull. de l' Acad. de Med. de Paris*, Oct. 24, 1916.

A series of one hundred cases comprising twenty-one cases of traumatic cicatricial otitis media, all of which were relieved by this method; eleven of labyrinthine concussion, of whom nine were relieved; fifty-nine of combined cicatricial otitis media and labyrinthine concussion, with forty-six relieved; nine of non-traumatic organic deafness, eight relieved. ED.

1253

Deafness from Shell Explosions. I. RANJARD, *Bull. de l' Acad. de Med. Paris*, Sept. 12, 1916.

The deafness resulting from shell concussion may be organic or neuropathic. It is organic when the organ of Corti is injured; neuropathic when there is inhibition of auditory sensation. The organic form is associated with otitis media, labyrinthine concussion, or auditory neuritis. True neuropathic deafness is usually accompanied by mutism, is bilateral and complete for all sounds and is not associated with vestibular disturbances. These features may also be present in organic deafness so

that while one cannot prove clinically that a given case is pure neuropathic deafness, it may however be excluded. Neuropathic deafness is amenable to psychotherapy; organic deafness may be benefited by auditory re-education. ED.

1287

The Aural School-clinique. KERR LOVE, *Glasgow Med. Jour.*, Feb., 1916.

Since nearly all the middle-ear disease of later life, both suppurative and non-suppurative, commences during the earlier years of the school period, the author regards the advent of the aural school-clinique as perhaps the most important development which has taken place in the treatment of ear disease for the last quarter of a century. Not only is treatment more important during the school period than at any subsequent time, but it is also very successful.

In Glasgow four well equipped school-cliniques have been in operation for a period of four years. Practically no operative work is undertaken, all cases requiring such treatment, including removal of tonsils and adenoids, are referred to the hospital serving the district in which the child resides. During the four years about 3250 cases, or 3 per cent of the children attending school have been treated. It has been found that in most cases permanent arrest of the discharge can be effected without operative treatment of any kind. In many others attention to the nasopharynx in addition to careful dressing of the discharging ears was required.

Although the results hitherto obtained are very satisfactory the best results cannot be secured until the School Board assumes the whole responsibility for the treatment of the children's ears, including all the necessary operative measures. GUTHRIE.

1293

Cauliflower Ear. D. H. PALMER, *Jour. Amer. Med. Assn.*, Feb. 5, 1916.

Palmer's treatment is described by him as follows: "After preparing the skin surfaces of the ear, the meatus and immediate vicinity of the face and scalp after any of the approved surgical methods except iodin, which causes intense itching, and plugging the external meatus with cotton, I make an incision under local anesthesia slightly below the prominent part of the swelling through the skin and perichondrium into the hemorrhagic cavity. All clots, newly formed cartilage or bone should be removed with a small gouge or curet, the surface of both cartilage and perichondrium being scraped until smooth. The incision is now closed, except for a small opening which will just admit the end of a Eustachian catheter, connected through a waste bottle with a small Pynchon pump. This rapidly removes the accumulated blood, and the suction approximates the loose layer of skin and perichondrium to the cartilage. The skin surface is now thoroughly dried and a fresh plug of cotton is placed in the external auditory canal. A generous coating of sterile petrolatum is now applied over both surfaces of the ear and the adjacent skin of the face and scalp. Should there be any area in which the skin and perichondrium are not perfectly approximated, I make a small mold of dentist's modeling wax or sheet lead and apply pressure at that point. The mold, coated with petrolatum, is now placed about the ear and half a tumblerful of plaster of Paris cream, prepared

by an assistant, is poured into the mold, completely surrounding the ear." As the plaster hardens a slight rotary motion of the catheter permits its easy withdrawal and establishment of a drain. The cast is removed by fragmentation ten days after the operation, the ear keeping its shape as adjusted." ED.

1295

Experimental Studies of Injection of the Gasserian Ganglion Controlled by Fluoroscopy. L. J. POLLOCK and H. E. POTTER, *Jour. A. M. A.*, Nov. 4, 1916.

In order to facilitate the technique of injection of the Gasserian ganglion by Härtel's method the authors use as a landmark the shadow cast by the anterior border of the temporal bone on a fluoroscope. ED.

1312

Examination of the Discharge in Mastoid Disease. A. H. ANDREWS, *Jour. Ophthalmol. and Oto-Laryngol.*, Sept., 1916.

The author believes that none of the clinical symptoms, blood count or bacteriological findings can be depended upon to give a correct index of what is going on in the mastoid. He advises that rather thick smears should be made of the discharge and immediately dried and fixed with heat. The smear should be lightly stained with hematoxylin and after drying and washing, examined by low power. Bone particles appear very dark or black in a comparatively light field. The specimen should be taken from the deeper part of the canal or beyond the membrane. The clinical significance of the presence or absence of these bone particles is that so long as there is no breaking down of the bony partition between the mastoid cells it is possible that the mastoid disease may clear up without operation. ED.

1313

The Streptococcus Mucosus Capsulatus as a Cause of Mastoid Disease. GORHAM BACON, *Boston Med. and Surg. Jour.*, Oct. 26, 1916.

In the author's experience the streptococcus mucosus capsulatus is the most destructive germ with which the otologist has to deal and from the cases cited the following points are emphasized: Pain may be very severe or very slight and the temperature is seldom much above normal. There may or may not be tenderness over the mastoid. The discharge may be profuse or slight and there may be absence of sagging of the posterior and superior canal wall. The x-ray is a valuable aid in diagnosis. There may be great destruction of bone even in cases presenting few symptoms. Only in very few cases can an operation be avoided. ED.

1322

Obscure Cases of Mastoid Involvement. A Study of the Diagnostic Signs. DR. EDWARD B. DENCH, *New York Med. Jour.*, March 18, 1916.

The author recites personal experiences with mastoid cases tending to show that the inflammatory process in the mastoid may steadily progress, although the middle ear condition may clear up. In all the cases enumerated the middle ear condition seemed to be improving and in all but one the drum membrane had entirely healed, and yet at the time of the operation, extensive destruction was found within the mastoid. Answering the question as to how we can tell in a given case of

acute aural suppuration that there will probably be serious mastoid involvement, the author believes, in the first place, that he site of the inflammatory process is important. Inflammations confined to the lower part of the tympanic cavity are much less liable to be followed by serious mastoid infection than cases in which the upper part of the cavity is involved. Secondly, in any case of acute middle ear inflammation where there is aural discharge longer than two weeks after the inception of the trouble and granted that drainage is free there is sufficient mastoid involvement to warrant at least exploratory operation. In regard to tenderness, this symptom at the beginning of an acute otitis is of comparative insignificance, but tenderness which appears after the fourth or fifth day of the attack is of great significance. The nature of the discharge is a valuable aid. A staphylococcus infection is usually mild. With a streptococcus infection the danger of mastoid involvement is greater and this is considerably so when the offending organism is the streptococcus mucosus capsulatus. The sign that Dr. Dench places great reliance upon as indicative of mastoid involvement is narrowing of the external auditory meatus near the drum. Another very significant canal sign is the apparent shortening of the meatus, a condition in which the entire drum membrane appears nearer to the entrance of the canal than under normal conditions (this does not refer to bulging). Finally, in every doubtful case of mastoiditis an x-ray should be taken. Two symptoms are regarded by Dr. Dench of considerable importance: persistent headache and sleeplessness, in course of or following otitis media. P. F.

1325

Roentgen Ray Diagnosis of Mastoid Disease. GEORGE S. DIXON, *Jour. Electrotherapeutics and Radiology*, Dec., 1916.

Of 288 cases reported positive the x-ray reading was confirmed in 201 on the operating table; in 37 there was no operation and 50 have been lost trace of or refused operation. At any rate, in all the operated cases not one was found negative. Of 115 negative cases the clinical symptoms warranted operation in 15, of which 8 gave positive findings and 7 negative findings on the operating table.

The method employed by the author aims to superimpose the internal on the external auditory meatus. This is done by placing the patient prone on the table with one arm flexed before the face and the other extended at his back on the table, the head resting on an incline of about 168. The tube is adjudged at right angle to the table, not to the incline, and the center at or a little below the parietal eminence. This throws out the opposite mastoid, shows the internal black and the external grey and larger surrounding it, gives a good outline of the mastoid process and enables one to locate the relative position of the sigmoid sinus without taking streoscopic plates. If the line marking the anterior border of the sinus groove is at right angle to Reid's base line the sinus is forward; if covered with cells it is deep; if it is clean cut and has no cells over it, it is rather superficial and if the groove does not show at all, it is shallow and probably well below the outer surface of the mastoid, but it is not likely to be forward as it must cut the petrous pyramid to be forward and it cannot do this without showing. ED.

1332

Acute Mastoiditis and Facial Paralysis. G. GRADENIGO, *Arch. ital. di Otol., Rinol. e Laringol.*, Aug., 1916.

Cases occur (1) where the lesions of the facial nerve in the internal auditory canal are accompanied by lesions of the cochlear and vestibular nerves; (2) where the nerve is injured in its course along the vestibular walls; (3) where the nerve is injured in its descending tract by infection of the mastoid cells. Gradenigo describes a case in which the facial nerve injury was brought about in the third manner. There was acute otitis media complicated by mastoiditis and during operation the descending portion of the facial nerve was found in direct contact with a small diseased cavity. The facial paralysis disappeared after fourteen days. At first it was thought that the otitis and facial palsy were distinct phenomena, but in view of the findings Gradenigo urges that in cases of facial paralysis with acute symptoms the middle ear and mastoid be thoroughly examined. ED.

1335

Corroborative Diagnosis of Mastoiditis by Means of X-rays. HAROLD HAYS, *New York Med. Jour.*, June 17, 1916.

The author cites cases to show the value of the x-rays in corroborating the clinical evidences of mastoid disease. He does not place all reliance upon the x-ray, but especially in atypical cases it is of great weight for or against operation. Furthermore, it shows the position of the sinus, the size and shape of the mastoid, etc. ED.

1343

Chronic Suppurative Mastoiditis Accompanied by Intracranial Pressure. E. J. LENT, *Indiana State Med. Assn. Jour.*, July, 1916.

A case is reported in which operation disclosed a large cyst. The cystic contents were sterile. The patient presented symptoms of meningeal irritation and ultimately recovered. The author discusses cerebral cysts and divides them into parasitic, traumatic, apoplectic and degenerated neoplasms. ED.

1394

Hemostasis in Sinus Injuries. RITTER, *Zentralblatt f. Chir.*, Nov. 25, 1916.

Ritter points out the drawbacks in military practice in controlling bleeding by tamponage of the sinus wound and the dangers of using clamps and ligatures. It has been proposed to allow the bone fragments to remain as a lesser evil, and their presence is usually well tolerated. By their strong compression of the sinus they form the best of hemostatics. But the same end would be gained if the fragments were promptly removed and a substitute inserted—bone prepared in advance. This should be far superior to a tampon which encourages the flow of blood and has to be changed. The author reports a case in which he removed a large piece of bone and then tamponed the sinus, the gauze being sutured in. Pus appeared in the stitches and the second tampon was found to be soaked with foul pus. After several days of non-improvement there was a gush of venous blood. Clamps, suture and ordinary tamponade gave no hope. Attempts to tampon between dura and skull proved fruitless. There were no bone plates ready and the author wedged

some thin pieces of wood between bone and dura until all hemorrhage ceased. Gauze was loosely inserted into the wound with a slightly compressive bandage over all. The patient made an excellent recovery. The author made use of very thin slips of wood of the type of cobblers' chips, which had been previously boiled, so that compression could be gradually effected. The fate of the wooden plates is not mentioned. ED.

1395

Lateral Sinus Disease: Three Interesting Cases. ARCHER RYLAND, *Jour. Laryngol., Rhinol. and Otol.*, Aug., 1916.

These cases were lateral sinus thrombosis with extra-dural abscess, lateral sinus phlebitis with extra-dural abscess and lateral sinus thrombosis with cerebellar encephalitis. The latter case came to autopsy and the special points of interest with regard to it seem to be the following: (1) The difficulty of coming to a correct decision as to which temporal bone should be explored first. In this case the wrong decision was made and the left side was explored first. (2) Rapid masking of lateral sinus symptoms by cerebellar symptoms and the consequent greatly increased difficulty of diagnosing either condition. (3) Failure during the operation to discover the cerebellar focus. (4) Apparent absence of clot on opening the right lateral sinus during operation. (5) Decided bilateral optic neuritis. (6) Absence of spontaneous nystagmus. ED.

1398

Fatal Case of Thrombosis of the Cavernous Sinus Secondary to a Furuncle on the Nose. E. WACKER, *Correspond.-Blatt fuer Schweizer Aerzte*, April 1, 1916.

A boy 12 years old noticed a small furuncle in the vestibule of the left side of the nose. Two days later the tip of the nose had become swollen and on the third day the entire left side of the face was swollen. On the fourth day there was left exophthalmos, chemosis, internal and external ophthalmoplegia and symptoms of meningitis. Staphylococcus septicemia. Autopsy showed left orbital phlegmon, thrombo-phlebitis of both cavernous sinuses, purulent meningitis, multiple lung abscesses. The author has been able to find only four similar cases in the literature. ED.

1404

Tumors of the Third and Fourth Ventricles. PETER BASSOE, *Jour. A. M. A.*, Nov. 11, 1916.

The report deals with six cases of tumors of the ventricles of the brain. The first was one of the third ventricle (the patient was a boy of fourteen). The tumor, a soft glioma, filled the entire ventricle and caused secondary hydrocephalus. The others were tumors encroaching on the fourth ventricles, one of which gave a clinical picture of cerebellar tumor although the growth was a small one in the upper part of the fourth ventricle. Three of the cases were operated on, all with disastrous results. It seems that any sudden interference with the intracranial pressure conditions is dangerous and death from this cause as well as the difficulty of diagnosis place such cases generally in the inoperable class. The author, however, believes that theoretically at least removal of tumors of the fourth ventricles is not impossible as some

of these tumors arise from the choroid plexus and are not attached to the walls and others are only attached above to the vermes, so that it would seem possible to enter the ventricle through the vermes provided the pressure in the posterior fossa is not too high at the time. ED.

1429

Otitic Cerebral Abscess. DR. GOT, *Rev. de Laryngol., d' Otol. et de Rhinol.*, No. 10, May 31, 1916.

Four cases are described illustrating the different clinical types of cerebral abscess of otitic origin: latent type, meningitic type, cerebral and cerebellar type. Three of the cases were temporo-sphenoidal and these were cured by operation; the fourth case was one of cerebellar abscess with a fatal outcome. In discussing the symptomatology the author dwells especially on the difficulties of diagnosis in these cases. The abscess may be of the latent type and the symptoms so vague as not to direct attention to its presence; or, the development of the abscess may take place concurrently with extradural complications, the symptoms of which may mask those of the abscess. He discussed the various symptoms of brain abscess and points out that the two symptoms which are generally present, even when all the others are absent, are headache and slow cerebration. Upon these he places a great deal of reliance. Of course the entire history must be gone into very carefully and other conditions, especially co-existent extradural suppuration must be taken into consideration. ED.

1430

Case of Otitic Cerebellar Abscess. A. GRADENIGO, *Arch. ital. de Otol. Rinol. e Laringol.*, Nov., 1916.

In this case, occurring in a girl of twelve, the abscess was not complicated by other encephalic lesions. The symptomatology was quite clear, the most important symptoms on which the diagnosis was made being: constant absence of fever, absence of Kering's sign, rigidity of the neck, symptoms of intracranial pressure (choked disc and paralysis of diseased side), nystagmus directed towards the diseased side and the functional integrity of the corresponding labyrinth. ED.

1433

Localization of Cerebellar Tumors. ERNEST G. GREY, *Annals of Surgery*, Feb., 1916.

In twenty-three out of fifty-eight cases of certified cerebellar and extra-cerebellar tumor an unusual tilting of the head so that the ear approximated the corresponding shoulder was present. Of forty-three certified cases of tumor lying anterior to the cerebellum, three showed any tilting of the head and the degree of tilting was hardly noticeable. Hence, marked tilting of the head would seem to indicate, in a patient with symptoms of an intracranial tumor, the presence of a subtentorial new growth. Backward retraction of the head was present in eight out of sixty cases of cerebellar and extracerebellar tumor (typical opisthotonus in two of these) but a similar position was not observed in any of the cases of tumor anterior to the cerebellum. Suboccipital headache or pain was present in thirty-three cases (56 per cent) and in the cases of tumor anterior to the cerebellum this symptom was present in fourteen (31 per cent). ED.

1435

Studies on the Localization of Cerebellar Tumors. II. The Pointing Reaction and the Caloric Test. ERNEST G. GREY, *American Jour. Med. Sciences*, May, 1916.

The caloric test has proved to be an important means of differentiating labyrinthine from intracranial disease. Together with the pointing reaction this test has been found of value, furthermore, in localizing circumscribed lesions in the cerebellum. The present report has to do with the results obtained from using these tests in thirty-one patients with cerebellar or extracerebellar tumor. In most of the patients having cerebellopontine new growths and in certain of those with tumors of one or the other hemisphere, the reactions were sufficiently characteristic to be of supplementary value in localizing the disease. In other patients with intra- or extra-cerebellar tumor, on the contrary, the results were often ambiguous and afforded no assistance in establishing a diagnosis. In fact, in numerous instances the conclusions drawn from these results were at variance with the other physical findings, and had any great reliance been placed on them would have led to erroneous results. There are probably a number of factors responsible for the occurrence of atypical reactions in patients with certified cerebellar tumors. The most important is the great increase in intracranial pressure due to an internal hydrocephalus which ultimately accompanies new growths in the posterior fossa, and secondly, the diffuse nature of many of the tumors common to the cerebellum. ED.

1436

Studies on the Localization of Cerebellar Tumors. V. The Cranial Nerves. E. G. GREY, *Johns Hopkins Bull.*, Sept., 1916.

Anosmia is usually a distant symptom due to a secondary internal hydrocephalus and has no appreciable significance for the localization of a new intracranial growth.

Choked disc has in itself no localizing import, but with other signs it will point to subtentorial growths. Very little reliance can be placed on the involvement of the third or sixth cranial nerves as a guide to the side occupied by a new growth in the posterior fossa.

The nystagmus seen in cerebellar disease is very frequently of cerebellar origin. Many exceptions occur to the rule that the movement is slower and coarser with the eyes turned toward the tumor, but a persisting and definite difference in the size and rate of jerks suggests the side of the lesion.

Impairment of the conjugate deviation has little importance for localization. Involvement of the fifth nerve has no topographical importance unless the tumor lies in the cerebellopontine angle.

Paresis or paralysis of the facial nerve is strong presumptive evidence of the side of the lesion, and especially so when the eighth or the fifth nerve of the same side is also affected.

A slight unialteral impairment of hearing, appearing for the first time in connection with general pressure symptoms, is indicative of a lateral tumor.

Great impairment or loss of hearing in one ear under similar circumstances points to a lateral extracerebellar tumor, and especially so when

the seventh or fifth nerve of same side is involved. Tinnitus is not a reliable guide.

Vertigo is a prominent symptom of subtentorial growths, but has no significance for localization. The presence of dysarthria and dysphagia is no contraindication to operation. They are two striking symptoms of intra and extra cerebellar new growths.

Involvement of the spinal accessory nerve is rare and corresponds to the side of the growth.

A weakness of the muscles supplied by the twelfth nerve is of no localizing significance. ED.

1437

Acute Cerebellar Ataxia in Children; Report of a Case with Rapid and Complete Recovery. J. P. CROZIER GRIFFITH, *Amer. Jour. Med. Sciences*, Jan., 1916.

The patient was a girl five years old. The noteworthy features in the case were the rapid development of symptoms without discoverable cause, unless they could be attributed to influenza which the child had had; the very uncommon degree of nystagmus; the ataxia of the extremities; disturbances of sensation; affection of speech; slight increase of reflexes, and the rapid recovery. As regards the nystagmus, examination showed that this was not of otitic origin as the nystagmus circuit was intact on both sides, indicating normal semicircular canals, eighth nerves, region of Deiter's nucleus, the posterior longitudinal bundle in the pons and its connection with the third and fourth nuclei. The nystagmus was lateral and vertical accompanied by a curious fluttering of the eyelids. Recovery was complete in one month. Treatment consisted of a purgative, administration of sodium bromide, bicarbonate of soda and enterocylsis. ED.

1440

Roentgenography in the Localization of Brain Tumor Based Upon a Series of One Hundred Consecutive Cases. G. J. HEUER and W. E. DANDY, *Johns Hopkins Hosp. Bull.*, Nov., 1916.

The authors' findings show that roentgenograms of the head are an important aid in the diagnosis of brain tumor (45 per cent of cases). Uncalcified tumors do not cast shadows in the roentgenograms unless tumor tissue has invaded the accessory sinuses (except in hypophyseal lesions which are viewed against the dark temporal fossa). Calcified or bony lesions cast shadows which are easily recognized (6 per cent of brain tumor cases). Signs of intracranial tension occur rarely in cerebral tumors but are the usual accompaniment in posterior fossa tumors. Combination of eye changes and local sellar destruction or enlargement makes the diagnosis most certain in all intracranial conditions. Local hypertrophy of the skull and local atrophy of the skull over tumors are of definite diagnostic importance (hypertrophy in 4 per cent of cases; atrophy in 2 per cent). ED.

1451

Intracranial Complications in the Course of Suppuration of the Accessory Sinuses of the Nose. ERICK KNUTSEN, *Nordisk Tidskrift for Oto-Rhino-Laryngol.*, Nos. 2, 3 and 4, 1916.

Six cases of meningeal and cerebral complications in the course of nasal accessory sinus suppuration. In two cases there was diffuse puru-

lent meningitis following frontal sinusitis. In another case there was an acute pansinusitis with osteritis of the frontal, maxillary and ethmoid bones following a subperiosteal abscess in the frontal region, orbit and nasal fossa and finally a serous meningitis with marked symptoms. In two cases the complications followed an old ethmoiditis which caused an osteitis and a pachymeningitis consecutive to a frontal lobe abscess. The sixth case was one of chronic frontal sinusitis and chronic pachymeningitis. ED.

1453

Otogenous Pyemia without Sinus-Phlebitis. J. E. KRAG, *Nordisk Tidskrift for Oto-Rhino-Laryngol.*, Nos. 2, 3 and 4, 1916.

Patient, girl, 4 years old. Acute otitis media both ears. Double mastoid. Abscesses in neck, right forearm and left arm. Fatal outcome. Autopsy showed sinus and jugular bulb on both sides healthy. ED.

1471

Gas Abscess of the Brain. EMMANUEL RYCHLIK, *Munchener mediz. Woch.*, Nov. 28, 1916.

A soldier received, through the explosion of a grenade, many septic wounds of the body and a slight superficial wound on the head, over the right temple. He developed high temperature and symptoms leading to a diagnosis of frontal lobe abscess (paresis of the left facial nerve and of left arm and leg). The wound was incised under a local anesthetic and the right temporal lobe exposed. The dura was tense, but not pulsating; it was pierced by small fragment of bone. Stinking, haemorrhagic and foam-like pus flowed from the wound. The whole right temporal region was occupied by the abscess, into which the whole finger, and the forceps could be put; a smaller cavity was found beside this large one. The abscess cavity was syringed with hydrogen peroxide, and a thin drainage tube inserted; the cavity was sponged out with gauze dipped in Chlumsky's solution: Acidi carbolici 30, camphorae trit. 60, alcohol. absol. 10 parts. The temperature was normal next day, and remained so. The man could sit without assistance, speak, write, and count quite correctly. The first change of dressing was made ten days after operation; a great deal of pus, with necrosed brain tissue, was discharged. No symptoms of any kind, either mental or physical, were afterwards exhibited, despite the great defect in the frontal and temporal lobes. Optic neuritis was present on each side, but more severe on the right. Fraenkel's gas bacillus has been observed to attack only the extremities, and, internally, only the uterus. Tietz and Korbsch, in a case of skull wound, found air bubbles in the pia mater, and concluded that the bacillus affected the pia mater; but their conclusion was based solely on the presence of air vesicles in the venous channels underneath the pia, and by the sickeningly sweet smell. Fraenkel himself said that the smell did not indicate the presence of his bacillus, that the vesicles might be admitted underneath the pia by the sucking in of air at the opening of the skull after death, and many of the phenomena might be explained by *post-mortem* putrefaction. Rychlik points out that in his case all the conditions necessary for gas inflammation were fulfilled —the complete exclusion of air, so that the organism grew under strictly anaerobic conditions. Signs of toxaemia were absent, and the high tem-

perature alone indicated septic mischief. The sudden development of such a large abscess could only be explained by the structure of the brain tissue and the gas-producing properties of the organism. ED.

1472

Observations in the Diagnosis and Treatment of Brain Injuries in Adults. WILLIAM SHARPE, *Jour. Amer. Med. Assn.*, May 13, 1916.

The author combats the notion that brain injuries following fracture of the skull get along just as well without operation as with it. This, he holds, is true if the operation has been delayed until they reach the dangerous state of medullary compression or even the later stage of medullary edema. An early operation is advisable not only as a means of saving life but also to lessen the danger of post-traumatic conditions which are, he believes, due to the resulting unrelieved intracranial pressure prolonged over several weeks or more. He reviews the symptoms that guide the surgeon and the other treatment. It is in fractures of the base that there has been the greatest difference of opinion as regards operation, and until recently it has only been realized that the fracture itself is of less consequence. It is the resulting hemorrhage and edema that are the dangerous complications of basal fractures. Decompressive operations, therefore, are advisable. In his seventy-nine patients operated on he has been impressed by the absence of extradural and middle meningeal hemorrhage unassociated with subdural lesions, which he thinks is a more uncommon condition than our textbooks would lead us to believe. In the great majority of cases many of the important guiding or localizing symptoms are absent and in that case if there are any signs of increased pressure in the skull, early subtemporal decompression is advisable. It is rarely possible to observe the fundal signs of choked disc within six hours after the injury and the signs of shock often overshadow or prevent the signs of increased intracranial pressure. The fracture itself is really the unimportant factor.

All depressed fractures of the vault should be elevated and removed for fear of later complications. ED.

1486

Otogenous Meningitis. G. V. TH. BORRIES, *Nordisk Tidskrift for Oto-Rhino-Laryngol.*, Nos. 2, 3 and 4, 1916.

Thirty-six cases. Six post-operative and two traumatic. Of the remaining twenty-eight fifteen cases complicated acute otitis media and thirteen cases chronic otitis media (15 labyrnthne, 10 tympanomastoid, 3 sinus phletitis origin). Seventeen of the twenty-eight cases presented neither edema nor sensitiveness of the mastoid and eleven of these seventeen showed no acute symptoms in the ear. In ten cases the cerebrospinal fluid was sterile. In nineteen cases bacteria were present (streptococci, 9 cases; streptococcus mucosus, 2 cases; streptococci and gram positive diplococci, 2 cases; staphylococci, 4 cases; staphylococci and gram negative rods, 1 case; gram negative rods, 1 case; gram negative rods and gram positive diplococci, 1 case; gram positive diplococci, 1 case). The author states that the cerebrospinal fluid may be turbid and sterile and that if it is so for two or three days, it will probably remain sterile. A case is reported in which the fluid had this character for seventeen days as proved by lumbar puncture on six occasions even on the day of the patient's death. ED.

1496

Inhibitory Action of Saliva on Growth of the Meningococcus. M. H. GORDON, *British Med. Jour.*, June 17, 1916.

1. Normal saliva inhibits growth of the meningococcus upon solid artificial culture medium (nasgar).

2. Saliva from carriers has a similar action.

3. Nasal mucus from normal persons has no such inhibitory effect on the growth of meningococcus.

4. A quantitative experiment showed that fresh saliva does not entirely lose this inhibitory influence when diluted a hundred-fold.

5. So pronounced is the antagonism of saliva to growth of the meningococcus in culture, that in a given experiment a volume of broth suspension containing living meningococci at the rate approximately of 1,000 million per c.cm. was prevented from growing by admixture with an equal volume of fresh saliva.

6. This antimeningococcal action of saliva is due to its living bacteria.

7. A young broth culture from saliva is at least as efficacious as fresh saliva is antimeningococcal action.

8. This effect is due to the living and multiplying bodies of the bacteria in the broth. When they have been separated off by a Berkefeld filter, or killed by heat, the broth has lost its antimeningococcal power.

9. The inhibitory action of saliva appears to be chiefly due to mixed salivary streptococci. Pure cultures of the predominant streptococci, when tested individually, were found to exert comparatively slight inhibitory influence on the growth of meningococcus.

10. These observations demonstrate the practical importance of avoiding contamination with saliva when swabbing the nasopharynx of suspected carriers of the meningococcus. ED.

1499

Circumscribed Cysts of the Leptomeninges, with Report of a Successful Operative Case. F. M. HANES and A. M. WILLIS, *Amer. Jour. Med. Sciences*, Dec., 1916.

The exact etiology of circumscribed cystic formations is uncertain. The pia-arachnoid spaces of the brain and cord form a true serous cavity analagous to the pleural and peritoneal spaces and it is reasonable to assume that the delicate leptomeninges as a result of either septic or aseptic inflamatory processes form adhesions which may produce single or multiple cysts. Trauma has closely preceded the development of certain cases of cystic meningitis. Pain has been a prominent feature of most of the cases recorded, but this symptom was entirely absent in the patient operated on by the authors. ED.

1509

Advantages of Repeated Lumbar Puncture in the Treatment of Epidemic and Other Meningitis. H. MÜHSAM, *Berliner klinische Wochenschrift*, Nov. 27, 1916.

Repeated lumbar puncture the author regards as equivalent to free incision and drainage in other parts. He has never seen any ill results by taking even as much as 100 c.c. at a time. These large tappings unburden the nerve centers which are compressed by the serous exuda-

tion, secure complete drainage for all the diseased products and bacteria and cause the appearance within the diseased area of the natural defensive bodies. He advises lumbar puncture daily. His death rate was 5 per cent. ED.

1512

Purpuric Form of Cerebrospinal Meningitis. DR. NETTER, *Revue de Medecine*, March, 1916.

Purpuric manifestations indicate that the disease has become generalized as proved by the demonstration of the meningococcus in the cutaneous lesions and in the blood and by the co-existence of other extra meningeal conditions (iridocyclitis, arthritis, endocarditis). ED.

1526

Toxic Action of Dilute Sodium Chlorid Solution on Meningococcus. C. SHEARER, *Lancet*, Oct. 7, 1916.

Almost all strains of meningococcus are killed when placed for a short time in dilute sodium chlorid solution. The action of the Na Cl seems to be most toxic when the concentration is 0.85 to 0.9 per cent. It was found that fresh cultures were more easily destroyed than old cultures. On the other hand, the toxicity of the Na Cl can be readily neutralized by the addition of a bivalent salt, for example, calcium chlorid, with or without the addition of a small amount of potassium iodide. ED.

1528

Influenzal Meningitis, with Report of a Case. ROBERT G. TORREY, *Amer. Jour. Med. Sciences*, Sept., 1916.

Patient a girl eleven years old. She had apparently had a severe attack of influenza with a frontal sinus infection followed by typical cerebrospinal meningitis. The spine was tapped thirteen times and the influenzal organism was present up to the last two tappings. There was an improvement in the symptoms following each tapping. Antimeningococcic serum used. Recovery was apparently complete with no nervous symptoms remaining.

Regarding treatment there are three measures which deserve serious consideration: (1) The anti-influenzal serum of Wollstein, whose action appears to be specific. (2) Hexamethylenamin, which is, however, of lesser value. (3) Repeated lumbar puncture. ED.

1536

Value of Lumbar Puncture in Cranial War Wounds. R. LERICHE, *Jour. de Chir.*, p. 451, 1916.

The author's observations on chemical and cytological examinations of the cerebrospinal fluid in injuries to the skull show that such examinations have no diagnostic value. But the repeated punctures have a therapeutic effect and this is, of course, of greatest value to the patient. ED.

1539

Operative Treatment of Cranial Gunshot Injuries. F. MULLER, *Beitr. z. klin. Chir.*, Bd. C, 1916.

One hundred and eighty gunshot injuries of the skull were treated by the author in eleven months. Because of the fact that such injuries may

for a long time give no indication of dangerous injury to the brain he made it a routine to expose every cranial injury no matter how harmless it may have appeared. Thirty-one of the 180 cases died, all except one from the direct results of the injury, most of them from brain complications. These complications were clinically of two types: one fulminating in character, the other insidious. Of gunshot injuries involving the brain 61 per cent recovered; with secondary operations 33 per cent recovered. Hence the importance of primary operation. Cases in which the bullets or other missiles remained in the brain showed 70 per cent mortality. ED.

1546

Radiography in Gunshot Wounds of the Skull. VILVANDRE, *Arch. de Radiol et d' Electrotherap.*, Feb., 1916.

No matter how obvious the clinical signs are to trephine a skull for a depressed fracture without preliminary x-ray examination is irrational. The relief of decompression may be obtained in a few hours, but if the patient still has a bullet or piece of shrapnel in his brain the prognosis is not really improved. At the same time, while recognizing the importanec of radiography previous to operation in skull cases, there are cases in which x-rays apparently fail. Even a good radiogram may be negative when the clinical symptoms point to the presence of a depressed fracture, and the failure is still more obvious in the case of a small linear crack or fissure. Damage to the skull, furthermore, is, as a rule, more extensive than can be shown in the radiograph, probably owing to the incidence of the rays on a round body. The author has noticed, in operating theater and wards, that skulls with long comminuted fractures —even skulls in which the depression is great—do well provided no foreign body is present. The connection between extensive fracture and good recovery has impressed the author, and he suggests that long fractures may be more efficient in relieving pressure than localized small trephining of one inch or so in diameter. A widespread decompression of a moderate degree may perhaps be better than decompression of a greater degree in a smaller area. In the cases of which he is thinking the bone remains in place, being only lifted up through intracranial pressure. The natural juxtaposition of the bone to the dura, and of the latter to the grey matter, persists to a great extent in such cases, and tends to prevent hernia cerebri and its sequelae of brain destruction and sepsis. The author wonders whether the lifting up of a large area of bone and replacing it after the necessary cleaning of clot and removal of loose bodies is not to be preferred to the trephining and removal of bone by the ordinary method. Future callus may entail further compression, but many fractured skulls, untouched by the surgeon, do well, and the sufferers go through life without further symptoms, except some slight headache. ED.

1549

Opening the Lateral Ventricle; Report of Two Cases. H. F. WOOLFENDEN, *Lancet*, May 20, 1916.

In both cases the lateral ventricle was opened for the purpose of extracting a bullet which had lodged therein, together with some splinters of bone. Both patients made complete recoveries except for a slight affection of the higher speech centers in one case and some loss of pain sensation on the left side in the second case. ED.

1551

A Semicircular Canal Indicator. J. W. Downey, Jr., *Jour. Amer. Med. Assn.*, Oct. 21, 1916.

This instrument consists of models of the canals mounted on the bows of a trial frame. With the trial frame fitted to the patient the canals are in approximately the correct position, and a glance will show the ones that are being acted on by rotation, or the douching, in any position of the head. It has the advantage over the Brünings otogonimeter in that it is not in the way in any position it may be desired to place the patient's head, and though not so accurate mathematically it is vastly superior in demonstrating the position in space of the various canals to those who are not constantly visualizing the anatomic peculiarities of the internal ear. Ed.

1554

A Damper for Testing Hearing by the Whispered Voice. P. J. Mink, *Arch. f. Ohren, Nasen und Kehlkopfheilkunde*, Bd. 100, H. 1 and 2, Nov. 21, 1916.

In view of the variability in the intensity of the whispered (as well as the spoken) voice at different examinations Mink arranged an apparatus in the shape of a small megaphone which fits around the lips of the examiner. This appliance has a damper on it by means of which he is able to obtain a whisper of the same degree at any time. Ed.

1560

A Prosthetic Apparátus for the Correction of Nasal Deformities. A. Herpin, *Bull. et Mem. de la Soc. de Med. de Paris*, Oct. 27, 1916.

It consists of two lateral blades of vulcanized rubber, to rest on the lateral aspects of the nose, and two smaller blades, to rest within the nostrils and afford counterpressure. The two blades of each side are connected by springs of platinized gold wire, the two springs being, moreover, joined at their centers, somewhat above the tip of the nose, by a small metallic disc. By suitable curving of the wires, the device is made to hold in place and exert pressure from without inward on the sides of the nose. With moderate pressure, insufficient to harm the tissues, apreciable results are obtained in a short time. Local skin elevations are flattened down, and the tissues forced back toward the midline, imparting greater laxity to the skin and favoring subsequent corrective operations, if such are to be undertaken. Where the alæ nasi have also been deformed in the process of healing and show a tendency to atresia, the same apparatus is employed, but with a modified intranasal portion. The latter is split on each side into two median and lateral halves, united by a spring wire, which tends to broaden the nostrils and restore their shape to normal. Ed.

1569

An Improved Instrument for Maintaining an Oral Air-way during General Anesthesia. J. E. Lumbard, *Medical Record*, Nov. 25, 1916.

The instrument consists of a double row of three curved wires running parallel, about an eighth of an inch apart and held together firmly by three cross-bands. It is 4½ inches long, ½ inch wide and ⅛ inch thick. The instrument is easily introduced by inserting the pharyngeal end between the tongue and soft palate until it rests in the pharynx. The

instrument does not interfere with any face mask nor with any method for administering a general inhalation anesthetic. It will not clog with mucus, is easily kept in position, it cannot be compressed by the teeth or gums and may be used in children as well as in adults. ED.

1618

Thymus Death. F. H. FALLS, *Surg., Gyn. and Obstet.*, June, 1916.

The symptoms are those referable to an enlarged thymus causing pressure upon the mediastinal structures with or without the associated changes found in status lymphaticus. Symptoms may be present at or shortly after birth and usually appear during the first year. They may appear suddenly in a previously apparently normal child or gradually with increasing severity. The cases of sudden death without premonitory symptoms are usually cases of status lymphaticus plus thymus hyperplasia. Treatment by irradiation with the x-rays has been tried with some success, but this should be restricted to older children and adults because of the destruction of thymic tissue by the irradiation. Hence x-ray exposure should not be undertaken in young children. If surgical removal is attempted the whole gland should not be removed because of the metabolic disturbances that follow, as shown by the experimetnal work of Klose and Vogt. ED.

1627

Hypertrophy of the Thymus. A. GISMONDI, *Gaz. degli Osped. e delle Cliniche*, No. 104, Dec. 28, 1916.

Hypertrophy of the thymus produces symptoms by direct compression of the trachea and the jugular veins and of the veins carrying blood from the brain and arm, thus impeding circulation in the thymus itself. In this way a vicious circle is set up which tends to aggravate the mechanical disturbances. In younger children, painting with iodin may induce a retrogression in the thymus. In older children prompt results can be obtained by x-ray exposure, but the dose should not be more than 5 or 6 H units at one sitting and the total should not be more than 20 units. Aluminum filter should be used. Some men have reported good results from small daily doses of epinephrin, and Pende combines epinephrin with hypophysis extract having noticed that this combination seemed to have a special inhibitory influence on hypertrophy of the thymus. ED.

1634

Microscopic Analysis of the Thymus in Sixteen Cases of Mostly Sudden Death from Internal Causes. J. O. HAMMAR, *Svenska Lakars Handlingar*, V. viii, No. 3, 1916.

The thymus in the cases of sudden death from internal causes differed in no respect from the thymus in healthy children. Not even in two cases of "thymus death" could anything be found to incriminate the thymus. The author concludes, therefore, that the thymus was not responsible for the sudden deaths. ED.

1641

A Further Report on Thromboplastin Solution as a Hemostatic. ALFRED F. HESS, *Jour. Amer. Med. Assn.*, Dec. 9, 1916.

Thromboplastin is a solution and a fine suspension of ox brain in normal salt solution with 0.3 per cent tricresol added as a preservative.

It has been employed extensively in nasal hemorrhage (as well as in gastric, duodenal and other hemorrhages) with excellent results. In hemophilia it may be regarded as a specific wherever it can reach the site of the bleeding. ED.

1642

Blood and Blood Vessels in Hemophilia and Other Hemorrhagic Diseases. ALFRED F. HESS, *Arch. Internal Medicine*, Feb., 1916.

The coagulation time of the plasma in hemophilia may become normal without any apparent change in the condition of the patient. A blood platelet count is of differential value between purpura and hemophilia. In purpura the blood platelets are decreased; in hemophilia normal. The puncture test is also an aid in differentiation (in hemophilia a hemorrhagic area rarely results from the puncture; in purpura it is the rule). The capillary resistance test is also of value (application of tourniquet). In purpura this causes petechial hemorrhages on the forearm, whereas in hemophilia the effect is negative. There is an hereditary purpura as well as an hereditary hemophilia. The male member may be hemophilic and the female purpuric. ED.

1644

Thymic Disturbances in the Adult. G. H. HOXIE, *New York Med. Jour.*, April 8, 1916.

The thymus attains its greatest size at the second year and atrophies at purberty. A persistent gland in adult life is characterized by weakness, shortness of breath and intestinal sluggishness. The diagnosis is made by percussion and x-ray examination. ED.

1670

The Use of Warmed Ether Vapor for Anesthesia. F. B. MCCARTY and B. F. DAVIS, *Ann. Surg.*, March, 1916.

The purpose of the authors' investigations was to determine whether ether vapor warmed to body temperature possessed any advantages over ether vapor as ordinarily administered. There being four standard methods of administering ether, closed ether, open or drop ether, intrapharyngeal insufflation and intratracheal insufflation, their problem was to determine, first, the temperature at which unwarmed ether is delivered to the patient by the various methods, the degree of warming which occurs in the air-passages and the amount of energy used in so warming the vapor; second, to observe the effects of warmed and cold vapor on animals as regards the quantity of ether required to induce and maintain anesthesia. local irritation and the effect on body temperature. Their results showed that (1) the amount of heat required to warm ordinary vapor as used in anesthesia by any of the four methods is so small as to be a negligible factor in lowering body temperature and inducing shock in anesthetized patients. (2) The warming of ether vapor, however administered, is accomplished in the mouth, pharynx, trachea and primary bronchi and the anesthetic reaches the alveoli at body temperature. (3) The quantity of ether required to produce and maintain anesthesia does not appear to be materially influenced by warming ether. (4) So-called cold ether does not appear to be more irritating to mucous membranes than warmed ether. (5) No more mucus and saliva are secreted when anesthesia is induced and maintained with cold than with warmed ether. ED.

1676

The Blood Plateletes in Hemophilia. G. R. MINOT and R. I. LEE, *Arch. Internal Medicine*, Oct., 1916.

Previous work had shown that the formed elements of the blood, the calcium and fibrinogen content, and the thrombin and antithrombin were practically normal in hemophilia. The platelets were abnormal. Addition of hemophilic platelets to hemophilic plasma in amounts even seventy-five times as large as normal platelets, never reduced the coagulation time to anywhere near normal. The evidence obtained suggested that the delay in clotting in hemophilia takes place in the initial step and is due to some interference with the platelets. The authors consider hemophilia the result of an hereditary defect in the blood platelets which renders them inavailable or slowly available for clotting purposes.

ED.

1695

Thymus Disease in Children; Case of Thymus Hypertrophy. H. B. SHEFFIELD, *Arch. Diagnosis*, Oct., 1916.

Hypoplasia, by inducing a reciprocal diminution in the thyroid secretion, produces arrest of growth, frailty of the bones, general debility, and lowered mental capacity, as exemplified in infantilism, particularly the Brissaud and Lorrain types. In thymic hyperplasia, the signs differ both according to the degree of enlargement and the functional activity of the thymus. Thymic hypertrophy may not be associated with increased function of the gland, which may, instead, be functionally incapacitated. Even where thymus secretion is excessive the symptoms caused vary greatly. Through a corresponding increased activity of the thyroid the symptoms may be confined to those of hyperthyroidism, viz., tachycardia, insomnia, altered disposition, abnormal perspiration, often slight exophthalmos, and possibly struma. In other thymic hyperplasia cases, examination reveals nothing but a few signs of rachitis or scrofulosis, in spite of which death may inexplicably occur from mild causes such as a serum injection, narcosis, or a minor operation (status lymphaticus). No definite signs characterize this condition either during life or at necropsy. In another group of cases of thymic hyperplasia percussion reveals marked dullness over the upper portion of the sternum, particularly to the left as low as the second rib and often also to the back between the scapulæ. In addition, there are swollen lymph glands in the lower lateral region of the neck, which may sometimes be seen to continue deeply down between the clavicle and the side of the sternum. In long standing hypertrophy, secondary manifestations, such as dilatation of veins of the neck, dislocation of the heart, accentuation of auscultatory signs of the heart and lungs, and arching and distention of the thorax, may be detected. The thymus occasionally becomes palpable as an arched elastic swelling in the midline above the incisura sterni. Thymus enlargement is distinctly discernible with the Roentgen rays. Encroachment on the thyroid, vessels and nerves, trachea, and bronchi cause signs special to each. As a rule, the symptomatology is essentially that of cardias asthma (asthma thymicum).

ED.

1697

Hysteria from the Otologic and Rhinologic Standpoint. F. SIEBENMANN, *Correspond. Blatt fuer Schweizer Aerzte*, Sept. 30, 1916.

Differentiation is most difficult when the manifestations of the hysteria are restricted to the ear. We must be on the alert when the objective findings do not seem to justify the intensity of the subjective symptoms. The author is convinced that we are deceived into doing needless operations on sound accessory sinuses more often than the literature records. All are agreed that when the hysteric nature of the trouble is learned the patient should be handed over to the psychiatrist. Cold douches and other brusque methods may exceptionally cure, but sham operations should not be attempted. He describes in detail the case of a young woman who had otitis in childhood and later simulated gastric ulcer and pulmonary tuberculosis, and had operations for gastric trouble and three mastoid operations. A second young woman had chronic otitis media on one side and secured seven operations on the mastoid or accessory sinuses. The consequence is deafness on that side and paralysis of the face and tongue from operative injury. Both these women became addicted to morphine. In a third case a boy of twelve became totally deaf after the explosion of a bomb from an aeroplane. He was unable to speak and presented a number of sensory and vasomotor cerebellar symptoms. This condition persisted rebellious to all measures for eight months. A complete change of environment—to the children's ward of a hospital—and local treatment of a catarrhal affection of an Eustachian tube almost at once restored conditions to clinically normal. He did not improve when placed in a private room in the hospital. ED.

1698

Cachexia from Destruction of the Pituitary. M. SIMMONDS, *Deutsche mediz. Woch.*, Feb. 17, 1917.

Simmonds reports two more cases (one case was reported two years ago) in which the only cause discovered at autopsy for the chronic cachexia was total destruction of the pituitary, in one case the result of embolism and in the others due to tumor growth. ED.

1715

The Internal Anatomy of the Face. DR. M. H. CRYER, Professor of Oral Surgery, University of Pennsylvania; Oral Surgery to the Philadelphia General Hospital. Philadelphia and New York: Lea & Febiger, 1916.

The marked favor with which the first edition of this book was received and the great demand for it as a work of reference has necessitated the issuance of a second edition. The present volume has been decidedly enlarged, new chapters having been added on the teeth with their nerve and blood supply, on the distribution of the fifth nerve, on the uses of frozen sections and on the inter-relations between the nasal cavity and its accessory sinuses. When we recall that this work by Dr. Cryer is the fruit of twenty years of painstaking study of hundreds of skulls, coupled with infinite patience and minuteness of observation, the source of its mass of information becomes evident. As a work on special anatomy it occupies a very important place in the rhinologist's and oral surgeon's library. ED.

1718

Cerebellar Abscess. Its Etiology, Pathology, Diagnosis and Treatment, Including Anatomy and Physiology of the Cerebellum. DR. ISIDORE FRIESNER, Adjunct Professor of Otology and Assistant Aural Surgeon, Manhattan Eye, Ear and Throat Hospital and Post Graduate Medical School, New York; and DR. ALFRED BRAUN, Adjunct Professor of Laryngology, New York Polyclinic, Assistant Aural Surgeon, Manhattan Eye, Ear and Throat Hospital, etc. New York: Paul B. Hoeber, 1916.

There are two important reasons for the appearance of this monograph on cerebellar abscess. First, fully ninety-eight per cent of cerebellar abscesses are otitic in origin. Second, the advances that have been made and the work still going on in cerebellar physiology and the relationships between the static labyrinth and the cerebellum. In fact, the subject of neurology has assumed not only a most fascinating study, but one of paramount importance in otology and the surgery of the brain.

The book is divided into five chapters: I Anatomy of the Cerebellum; II Physiology of the Cerebellum; III Etiology and Pathology of Cerebellar Abscess; IV Symptoms of Cerebellar Abscess; V Prognosis and Treatment of Cerebellar Abscess. The book makes available a detailed description of the pointing test as worked out by Barany.

To him who strives for proficiency in neurotology this book is certainly one of the prerequisites. ED.

1727

Surgery and Pathology of the Thyroid and Parathyroid Glands. DR. ALBERT J. OCHSNER, Professor of Surgery, Medical Department of the University of Illinois, and DR. RALPH L. THOMPSON, Professor of Pathology, St. Louis University School of Medicine. St. Louis: C. V. Mosby Company, 1916.

In view of the great interest that surgeons and pathologists are concentrating on the thyroid and parathyroid glands the present volume should meet with a great deal of appreciation. The literature on these glands, especially from the surgical and physiologico-chemical aspects, has become very voluminous. Of the two glands the thyroid has of course received most attention. The parathyroids have been too long neglected both in medical text-books and medical teaching, and this perhaps because of the fact that our knowledge of them is still rather experimental in nature. But a comprehensive work on the subject is certainly timely and needful. Drs. Ochsner and Thompson's work fulfills this need in a masterful way and promises to prove to be one of the very important books published during the last year or two.

It is divided into two parts. Part one, comprising about 197 pages, is devoted to the thyroid; part two, approximately of equal volume is devoted to the parathyroids. This section as well as the chapter on pathology of the thyroid was written by Dr. Thompson who, by the way, has been a prominent contributor to investigations in this field. The clinical considerations of the thyroid and the non-surgical and surgical treatments of goiter are the work of Dr. Ochsner.

In describing the technique of thyroidectomy only those methods have been chosen in which Dr. Ochsner's wide experience of more than a

score of years have been found reliable. This chapter is truly classic in its clearness of expression and exposition of technique. The steps of the operation are outlined also with the aid of thirty half tone plates.

The section dealing with the parathyroids takes up in order anatomy (human and comparative), embryology and histology, pathologic histology, cysts and tumors, postoperative tetany, medical tetany, parathyroid therapy, etc. It is essentially an analysis of experimental evidence regarding the role of the parathyroids in the human economy. As a presentation of our present views on this important question this section occupies a most important place in medical literature, and contains a very complete bibliography of the subject.

Certainly the co-authorship of the book could not have been more happily arranged and the authors are to be congratulated in this respect. Praise is also due the publishers for the excellent printing of the book.

ED.

1730

A Manual of Otology. DR. CHARLES E. PERKINS, Professor of Clinical Otology in New York University and Bellevue Hospital Medical College; Associate Aural Surgeon to St. Luke's Hospital, etc. Philadelphia and New York: Lea & Febiger, 1916.

This work is not one of the largest on diseases of the ear, but it is certainly one of the most comprehensive. The student, general practitioner or young specialist will find it a very efficient working manual. Excessive verbiage has been scrupulously omitted. The text is concise and to the point and the information is presented in a most understandable and matter of fact way. There are certain chapters in the book which deserve special commendation. For example, the one on the functional tests of audition and the one on the functional tests of the static labyrinth. There are books which make these subjects so complicated and difficult that any reader but a mature otologist or neurologist becomes bewildered and gives up all hope of ever understanding them. Not so in this book. Even a medical sophomore could grasp the principles very comprehensively by carefully reading the chapters through. Of course, the subjects are considered in a more elementary manner and from the standpoint of their practical application, but that is exactly what the scope of this book is, to be a working manual to the non-specialist or to the student. The chapters on the mastoid operation, simple and radical, are very explicit. So also those on the various varieties of labyrinthitis and intracranial complications. ED.

1732

Oral Abscesses. KURT H. THOMA, D. M. D., Lecturer on Oral Histology and Pathology and Member of the Research Department of Harvard University Dental School; Instructor in Dental Anatomy, Harvard Medical School; Oral Surgery to the Robert B. Brigham Hospital, etc. Boston: Ritter & Company, 1916.

In times gone by the medical profession regarded the mouth and teeth as of secondary importance in the practice of medicine; in fact, their examination was usually superficial and consisted in noting whether or not the tongue was coated, whether or not the tonsil was inflamed. The mouth was relegated to the dentist as his domain. But things have

changed. The mouth and teeth have assumed the position of most important gateways for the entrance of disease. The presence in the teeth and other parts of the oral cavity of latent foci of infection has explained many obscure cases of sinus disease, otitis media, trifacial neuralgia, adenitis, diseases of the eye, of the blood, of the joints, etc. The sharp dividing line between dentistry and medicine has been broken down; oral surgery is a specialty in medicine. No wonder then that as oral infections have taken such an important place in the etiology of disease, a book devoted to oral infections and their complications should make its appearance.

Such a book is Dr. Thoma's work on "Oral Abscesses." From the quality of paper and the wealth of costly plates (there are seventy-nine of them, twenty-two being in color) it is quite evident that the publishers have spared no pains or expense in the publication of this volume. Careful perusal of the work leads to the conclusion that they were fairly justified in their lavishness. The book is destined to meet with general favor as one of the pioneers in this important branch of medicine. It has no partisanship. It interests the physician and the surgeon just as much as the dentist and he will be surprised to find how much there is to the pathology of the teeth.

The book opens with a consideration of the phenomena of infection. That infection may result not alone from neglect of the teeth but also from overdentistry of the teeth we learn from the following: "Oral abscesses, especially of the unsuspected chronic type, are in these days of overdentistried teeth a common infection and are of the greatest importance in the diagnosis and treatment of secondary disease * * *." Then follows in order a very detailed exposition of alveolar abscess (caused by disease of the dental pulp and to causes other than this etiology), abscesses of the tongue and salivary glands and ducts, bacteriology of oral abscesses, histological pathology of dento-alveolar disease, secondary complications, treatment of oral abscesses, prevention of periapical infection, devitalization of teeth, etc.

The author has a chapter devited to abscess of the tongue and salivary glands and ducts. Either this should be omitted or with equal propriety a very important form of oral abscess—peritonsillar abscess—should also be included, at least for the sake of completeness. The same applies to tuberculosis of the tongue. Why not include syphilis of the tongue, the differential diagnosis of which is often difficult?

But these are minor considerations. A very interesting feature in the chapter on secondary complications is the citation of illustrative cases in the author's experience of these conditions. The book can be highly recommended and the author and publishers congratulated. Ed.

APPARATUS FOR SUSPENSION LARYNGOSCOPY

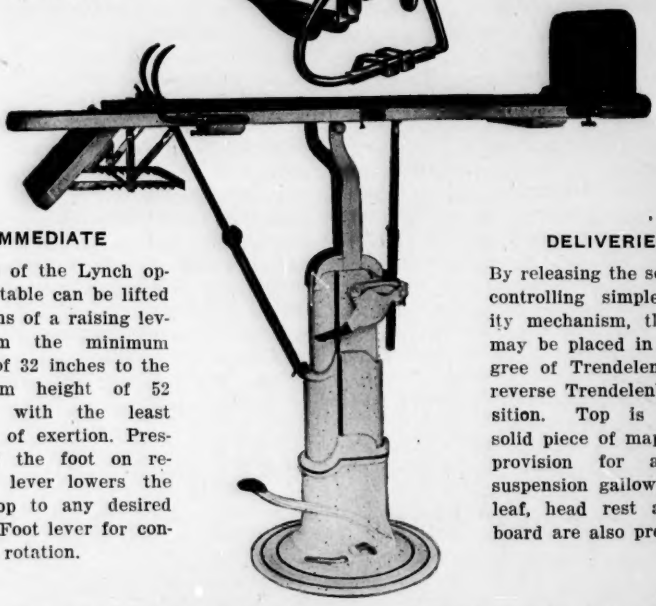
Designed by **Dr. R. C. LYNCH, NewOrleans, La.**

Fig. C.

Fig. A—Suspension hook with tongue spatula, for which five spatulas of different sizes are provided. Latest apparatus supplied with all improvements suggested by Dr. Lynch, such as wing set screw to hold spatulas securely and preventing same from rotating, etc. This apparatus is used in connection with the well-known Killian suspension gallows.
See "Laryngoscope," December, 1916, page 1362.

Fig. B.

Fig. B—Modified dental impression spoon, two sizes of which are provided, for adults and children. Illustration shows spoon filled with dental compound. After impression has been made and compound filling entire jaw and hard palate, there is no longer any danger of damaging or loosening teeth, as no metal comes in contact with teeth.
Fig. C.—Showing elongated tooth plates in position making traction on dental spoon.



IMMEDIATE

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